F.Y.B.Sc. (AI and ML) 2025-26

	Semester I Subjects	Credits		Semester II Subjects	Credits
Major **BAI101** **BAS102** **BAISP103**	 Imperative Programming with C Statistical Data Analysis Imperative Programming with C and Statistical Data Analysis Practical	2 2 2	**Major** **BAP201** **BAD202** **BARD203**	 Python Programming Probability and Distribution Python Programming and Probability and Distribution Practical	2 2 2
Minor			**Minor** **BAC204**	Calculus	2
OE **BAB104** **BAE105**	 OE 1: Basic Accounting and Practices OE2: Business Economics	2 2	**OE** **BAF205** **BAE206**	 OE1: Financial Markets OE2: Digital Marketing	2 2
VSC **BAD106** **SEC** **BADP107**	Discrete Mathematics Discrete Mathematics Practical	2 2	**VSC** **BAM207** **SEC** **BAMP208**	Database Management System Database Management System Practical	2 2
AEC **BAC108** **VEC** **BAG109** **IKS** **BAT110**	Corporate communication-I Green Technology-I Evolution of IT	2 2 2	**AEC** **BACC209** **VEC** **BAG211**	Corporate communication-II Green Technology-II	2 2
CC **BAS111/** **BAL111/** **BAP111**	NSS/ Sports/ Cultural/ Yoga	2	**CC** **BAS211/** **BAL211/** **BAP211**	NSS/ Sports/ Cultural/ Yoga	2
	Total	**22**			**22**

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<table>
<tr><td colspan="2">Programme Name: F.Y.B.Sc (AI and ML) Semester: I</td></tr>
<tr><td colspan="2">Course Category/Vertical: Major</td></tr>
<tr><td colspan="2">Name of the Dept: Science and Technology</td></tr>
<tr><td colspan="2">Course Title: Imperative Programming with C</td></tr>
<tr><td colspan="2">Course Code: BAI101 Course Level: 4.5</td></tr>
<tr><td colspan="2">Type: Theory</td></tr>
<tr><td colspan="2">Course Credit: 2 credits</td></tr>
<tr><td colspan="2">Hours Allotted: 30 Hours</td></tr>
<tr><td colspan="2">Marks Allotted: 50 Marks</td></tr>
<tr><td colspan="2">Course Objectives (CO):
1. To develop the logical ability and basic concepts to be cleared using suitable examples of the students
2. To handle the errors and find suitable solution.</td></tr>
<tr><td colspan="2">Course Outcomes (OC):
OC1: Learn the basic principles of programming and develop of logic using algorithm and flowchart.
OC2: Understanding of input and output functions and study various data types data types.
.</td></tr>
<tr><td>Description the course:</td><td>Explore the foundational principles of programming using the C language in this comprehensive course. From basic syntax to advanced concepts, gain hands-on experience in problem-solving, algorithm development, and code optimization. Build a strong foundation for understanding programming
logic, memory management through practical exercises and projects.</td></tr>
</table>

Unit No.	Content	Hours
I	**Introduction:** Algorithms, Structure of C Program. Program Characteristics, Compiler, Linker and preprocessor, pseudo code statements and flowchart symbols, Desirable program characteristics. Compilation and Execution of a Program, C Character Set, identifiers and keywords, data types and sizes , constants and its types, variables, Character and character strings, typedef, typecasting **Type of operators:** Arithmetic operators, relational and logical operators, Increment and Decrement operators, assignment operators, the conditional operator, Assignment operators and expression, **Control Flow:** Statements and Blocks, If-Else, Else-If, Switch, Loops- While and For Loops Do-while, Break and Continue, Goto and Labels	15
II	**Functions and Program Structure:** Basics of functions. User defined and Library functions, Function parameters, Return values, Recursion, Scope Rules, Standard Input and Output, Formatted Output-printf() and Formatted Input- scanf(), Line Input and Output **Pointer and Arrays:** Pointers and Functions, Multidimensional Array, Command-line Arguments, Pointers to Functions **Structures:** Basics of structures, Structures and Functions, Arrays of Structures, Unions, **File management in C:** Defining and Opening file, Closing a file, Input / Output operations on file, Error handling in C, Random access to files	15
	Total Hours	30

References:

1. Programming Language, Brian W.Kernighan and Denis M.Ritchie, PHI 2nd Edition 1998
2. Mastering C K R, Venugopal, Tata McGrawHill , 6th Edition, 2007
3. Programming with C , K R Venugopal, Tata McGrawHill, 6th Edition 2007
4. Let us C, Yashwant P. Kanetkar, BPB Publication
5. Programming in ANSI C, E.Balagurusamy, Tata McGrawHill, 7th Edition , 1982

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Programme Name: **F.Y.BSc (AI and ML)**	**Semester: I**
Course Category/Vertical: Major	
Name of the Dept: **Science and Technology**	
Course Title: Statistical Data Analysis	
Course Code: **BAS102**	Course Level:4.5
Type: Theory	
Course Credit: 2	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives (CO): (List the course objectives) 1. To introduce students to the fundamentals of statistics, including its scope, importance, limitations, and application in data analysis. Students will also learn data presentation techniques and central tendency measures, helping them summarize and interpret data effectively. 2. To teach students measures of dispersion (range, quartile deviation, standard deviation, etc.) and advanced statistical concepts such as moments, skewness, and kurtosis. The course also covers correlation and regression analysis, equipping students with techniques for analyzing data variability and relationships between variables.	
Course Outcomes (OC): OC 1. Understand statistical concepts, types of data, data collection methods, and apply measures of central tendency for data interpretation. OC2. Apply measures of dispersion, correlation techniques, and perform linear regression analysis using the least squares method.	
Description the course:	This course offers a foundation in statistical techniques essential for AI and ML, covering data collection, graphical presentation, central tendency, dispersion, correlation, and regression. It equips students with key data analysis skills for real-world applications and advanced studies in AI and Machine Learning.

	Content	Hours
I	**Introduction to Statistics and its Application** : Meaning of Statistics as a Science, Importance and Limitation of Statistics, Functions of Statistics, Scope of Statistics, Primary data, Secondary data, Quantitative and Qualitative **Presentation of Data:** Graphical representation of frequency distribution by Histogram, frequency polygon, Cumulative frequency curve, Stem and leaf diagram. **Measure of Central Tendency** : Requirements of good measure, Locational averages: Mean, Median, Mode and Partition Values: Quartiles, Empirical relation between mean, median and mode, Merits and demerits of using different measures & their applicability.	15
II	**Measures of Dispersion:** **Absolute and Relative measures of dispersion:** Range, Quartile Deviation., Mean absolute deviation, Standard deviation, Coefficient of Variation (C.V). Moments, absolute moments, factorial moments, skewness and kurtosis, Sheppard's corrections. **Correlation and regression analysis :** Concept of Correlation**,** Scatter Diagram, Product moment correlation coefficient and its properties, Correlation, Karl Pearson's coefficient of correlation (r), interpretation of r, Coefficient of determination (r^2), Spearman's Rank correlation (R).Concept of linear regression, Principle of least squares, Fitting a straight line by method of least squares and fitting of polynomials, Relation between regression coefficients and correlation coefficient.	15
	Total Hours	30

References:

Sr. No.	Title	Author/s	Publisher	Edition
1	Statistical Methods (An Introductory Text)	Medhi J.	New Age International	Second Edition
2	Basic Statistics	Agarwal B.L.	New Age International Ltd.	
3	Theory and Problems of Statistics	Spiegel M.R	Tata McGrawHill.	

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Programme Name: **F.Y.B.Sc (AI and ML)**	**Semester: I**
Course Category/Vertical: Major	
Name of the Dept: **Science and Technology**	
Course Title: Imperative Programming with C and Statistical Data Analysis Practical	
Course Code: **BAISP103**	Course Level: 4.5
Type: Practical	
Course Credit: 2	
Hours Allotted: 60 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): 1. To develop the logic of the student. 2. Describe loops and Practical use of operators. 3. To provide students with practical skills in Excel for performing data visualization (charts, histograms, line graphs), data entry and validation, and statistical analysis, including measures of central tendency, dispersion, moments, skewness, and kurtosis. 4. To equip students with the ability to perform advanced data analysis in Excel, including fitting polynomials and exponential curves, calculating correlation coefficients, and conducting regression analysis to model data relationships.	
Course Outcomes (OC): OC1: Develop applications. OC2: Understand the differences between syntax errors, runtime errors, and logic errors CO3: Students will be able to create and interpret various data visualizations, compute key statistical measures (mean, median, standard deviation), and analyze data distribution characteristics such as skewness and kurtosis using Excel. CO4: Students will be able to fit polynomial and exponential curves, calculate Pearson's and Spearman's correlation coefficients, and apply regression analysis using Excel, enabling them to model and interpret relationships between variables effectively.	
Description the course:	The course teaches students how to apply statistical techniques using Excel. Topics include graphical data representation (bar charts, histograms, line graphs, pie charts), data validation, and calculating measures of central tendency and dispersion (mean, median, standard deviation). The course also covers moments, skewness, kurtosis, and fitting polynomials and exponential curves. Students will learn to compute correlation coefficients (Pearson's, Spearman's) and perform regression analysis using Excel's Data Analysis Toolpak, enabling them to analyze and model data effectively for AI and ML applications.

Unit No.	Content	Hours
	1. a. Write an algorithm and draw flowchart for Area of circle. b. Write an algorithm and draw flowchart to print the given no. is even or odd. c. Write an algorithm and draw flowchart to print 1 to 10 numbers. d. Write an algorithm and draw flowchart for sum of 1 to 5 numbers. 2. a. Write a program using while loop to reverse the digits of a number. b. Write a program to calculate the factorial of a given number. c. Write a program to find the roots of quadratic equation. d. Write a program to print the Fibonacci series. 3. a. Write a program in C to check entered character vowel or consonant b. Write a program to C program to print day name of week using switch-case. c. Write a program to read three values from keyboard and print out the largest of them without using if statement. 4. a. Write a program to print the pattern of asterisks as shown below * * * * * * * * * * b. Write a program to print the pattern of asterisks as shown below : * * * * * * * * * * c. Write a program to print Floyd's Triangle. 5. a. Write a program to print area of square using function. b. Write a program using recursive function. c. Write a program to square root, abs() value using function. d. Write a program using goto statement. 6. a. Write a program to print rollno and names of 10 students using array. b. Write a program to read a matrix of size m*n.	

	c. Write a program to sort the elements of array in ascending or descending order. 7. a. Write a program to extract the portion of a character string and print the extracted part. b. Write a program to find the given string is palindrome or not. c. Write a program to using strlen(), strcmp() function. 8. a. Write a program to display the values using different data types and its address using pointer. b. Write a program to perform addition and subtraction using pointer. 9. a. Write a program to copy the contents of the file from one file into other. b. Write a program to print the structure using • Title • Author • Subject • Book ID Print the details of two students. 10. a. Create a mini project on “Bank management system” . The program should be menu driven	
	Total Hours	30

Unit No.	Content	Hours
1	**Graphical Representation of Data**	
a.	Create a **bar chart** to represent categorical data and Construct a histogram for a continuous data set.	
b.	Plot a **line graph** to visualize trends over time and Design a pie chart to show proportions.	
2.	**Data Entry and Data Validation**	
a.	Data Queries with Sort, Filter and Advanced Filter Exact function data entry comparison	
b.	Specifying a valid range of values for a cell Specifying a list of valid values for a cell	
3.	**Measures of central tendency**	
a.	Calculating Mean, Median, Mode, Minimum, Maximum, range with cell reference and Using Summary statistics	
b.	Analyze the dataset to identify the most appropriate measure of central tendency.	
4.	**Measures of Dispersion**	
a.	Calculate Range, Variance, Standard deviation with cell reference	
b.	Create a boxplot to visually analyze data dispersion.	
5.	**Moment, Skewness and Kurtosis**	
a.	Calculate the **raw moments** and **central moments.**	
b.	Calculate Skewness and Kurtosis.	
c.	Analyze the skewness and kurtosis values to interpret the shape of the data distribution.	
6.	**Fitting of Polynomials and Exponential Curve**	
a.	Fit a **polynomial trend line** to data and analyze the **R-squared** value.	
b.	Fit an **exponential trend line** to data and interpret the fit.	
7.	**Karl Pearson's Correlation Coefficient**	
a.	Calculate the Pearson correlation coefficient for two variables. Interpret the correlation value to understand the strength and direction of the linear relationship.	
b.	Create a **scatter plot** to visually examine the relationship between variables.	
8.	**Spearman Rank Correlation with and without Ties**	
a.	Rank the data using function and Calculate **Spearman's rank correlation coefficient** for data with **ties**. Interpret the rank correlation value.	
b.	Calculate **Spearman's rank correlation coefficient** for data without **ties**. Interpret the rank correlation value.	

9.	Correlation Coefficient for a Bivariate Frequency Distribution	
a.	Compute the correlation coefficient for bivariate grouped data.	
10.	**Regression analysis**	
a.	Use **Data Analysis Toolpak** to perform **linear regression** on data. Derive the **regression line** (equation) for **Y on X** and **X on Y**	
b.	Use the regression equation to estimate the value of Y based on X and vice versa.	
	Total Hours	60

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester: I**
Course Category/Vertical: Open Elective1	
Name of the Dept: **Science and Technology**	
Course Title: Basics Accounting and Practices	
Course Code: **BAB104**	Course Level: 4.5
Type: Theory	
Course Credit: 2	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. To make learner familiar with Basic concept and Terminology of accounting 2. To make learner familiar with Financial Statement Analysis and Interpretation with ratio	
Course Outcomes (OC): OC1.The learner will understand the basic concept of Accounting , Convention, Inventory Valuation & Final accounting OC2.The learner will be able to understand Ratio computation and the financial statement interpretation and Analysis	
Description the course:	The course introduces learners to the basic concepts of Accounting Fundamentals required in Implementation of accounting It will assist them in making better understating of accounting principles and conventions with analysis of Vertical financial statement. The course will inculcate effective accounting and analytical skills in learners enabling them to interpret and conclude Business opportunity through solid capital collection from public at Large in the corporate world which enable them to serve as accountant, financial analysis, Financial managers etc.

Unit No.	Content	Hours
I	**Introduction to Basic of accounting in Going Concern** 1.Introducation and Definition of Accounting 2.Objectives, Convention and Scope of Basics of Accounting 3.Journal Entry, Transaction and Double entry Book System 4.Taial balance, Preparation Trading account, Profit & Loss account and Balance sheet 5.Inventory Valuation – (Meaning, Scope and Methods-FIFO Method and Weighted Average Method)	15
II	**Financial Statement analysis and Interpretation** 1.Introducation of Financial Statement Analysis & Interpretation 2. Vertical Form of Financial statement –(Profit & Loss a/c and Balance sheet) 3.Trend Analysis of Financial Statement 4.Comparative and Common size analysis of Financial statement 5.Ratio Analysis	15
	Total Hours	30

References:

1. Introduction to Accountancy by T.S. Grewal, S. Chand and Company (P) Ltd., New Delhi
2. Advance Accounts by Shukla and Grewal, S. Chand and Company (P) Ltd., New Delhi
3. Financial Accounting by P.C. Tulsian, Pearson Publications, New Delhi
4. Introduction to Financial Accounting ,Manan Prakashan Aniapure
5. Introduction to Financial Accounting ,Vipul Publication
6. Financial Management-Tulsian

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Programme Name: F.Y.B.Sc(AI and ML)	**Semester: I**
Course Category: Open Electives II	
Name of the Dept: **Science and Technology**	
Course Title: Business Economics	
Course Code: **BAE105**	Course Level:4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1: To make learners familiar with basic concepts in Microeconomics 2: To make learners aware about concepts of Macroeconomics	
Course Outcomes: OC1: Learners will understand basic concepts in microeconomics OC2: Learners will understand the concepts of macroeconomics.	
Description the course:	Studying microeconomics and macroeconomics as part of a data science curriculum provides students with a strong foundation in understanding how economic principles influence individual decision-making and overall market behavior. integrating microeconomics and macroeconomics into a data science curriculum provides students with a comprehensive understanding of how economic factors influence data trends, decision-making processes, and business outcomes.

Unit No.	Content	Hours
I	**Introduction to Microeconomics:** Meaning, Definitions of Economics, Basic Concepts of Microeconomics Functional Relations and Tools for Economic Analysis The basics of Market Demand, Market Supply& Equilibrium Price Concepts of Costs and Revenue Market Structure – Perfect Competition, Monopoly, Monopolistic Competition & Oligopoly	15
II	**Introduction to Macroeconomics** Meaning, Scope, Importance & Limitations of Macroeconomics National Income – Concepts of National Income, Circular flow of National income Trade Cycle – Features, Types & Phases Monetary Policy -Objectives, Instruments &Role of Monetary Policy in Developing Economies Fiscal Policy - Objectives, Instruments &Role of Fiscal Policy in Developing Economies Inflation – Meaning, Demand Pull Inflation & Cost push Inflation, Measures to control Inflation.	15
	Total Hours	**30**

References:

1. N. Gregory Mankiw, (2015), “Principles of Microeconomics” 7th edition- Cengage Learning.
2. Sen Anindya, (2007), “Microeconomics Theory and Applications” Oxford University press, New Delhi.
3. Salvator D, (2003) “Microeconomics Theory and Applications” Oxford University press, New Delhi.
4. Richard Froyan, (2012), Macroeconomics: Theories and Policies, Person Education
5. Eroll D’souza, (2008) Macroeconomics, Pearson Education.
6. Suman Kalyan Chakravarty, (2010), Macroeconomics, Himalaya Publishing House.

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Programme Name: **FYB.Sc(AI and ML)**	**Semester: I**
Course Category/Vertical: Vocational Skill Course	
Name of the Dept: **Science and Technology**	
Course Title: Discrete Mathematics	
Course Code: **BAD106**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): (List the course objectives) 1. Course will provide students with an overview of discrete mathematics. 2. Students will learn about topics such as logic and proofs, sets, Relation and functions, techniques of counting, graph theory, Binary tress and other important discrete math concepts.	
Course Outcomes (OC): OC1. Understand the basic principles of sets, operations in sets and different types of relations. Analyze mathematical properties using mathematical induction methods. Understand different counting techniques and method of Solving Recurrence relation. OC2. Understand graphs and Binary trees and its various applications	
Description the course:	It provided the basic techniques to solve the problems. This course provided the foundation for many computer science Courses including data structures, algorithm, operation system.

Unit No.	Content	Hours
I	**Sets, Relation and Function** Definition Sets and Elements, Subsets, Venn Diagrams, Set Operations, Algebra of Set, Power Sets, Mathematical Induction , Relations on sets, Reflexivity, Symmetric and Transitivity, Equivalence Relations, Functions Define on general sets, One-to-One, Onto, and Invertible Function, composition of functions and Cardinality with application to Computability. **Techniques of Counting** Basic Counting Principles, Permutations, Combinations, the Pigeonhole Principle, The Inclusion–Exclusion Principle, Recurrence Relations, Linear Recurrence Relations with Constant Coefficients, Solving Second Order Homogeneous Linear Recurrence Relations. **Probability:** Basics of Probability, Addition Rule	15
II	**Graph Theory:** Graph Definition and basic properties, Sub graphs, Matrix representation of graph , Isomorphism of Graphs, Paths, Connectivity, Traversable and Eulerian Graphs, Labeled and Weighted Graphs, Complete, Regular, and Bipartite Graphs, Planar Graphs, Representing Graphs in Computer Memory, Graph Algorithms, Traveling-Salesman Problem, Introduction, Directed Graphs, Sequential Representation of Directed Graphs, , Shortest Paths, Linked Representation of Directed Graphs, Graph Algorithms: Depth-First and Breadth-First Searches Algorithm for Shortest Path. **Trees and Binary Trees:** Definition and properties of tree, Spanning tree and shortest path. Definition Binary Trees, Complete Binary Trees, Traversing Binary Trees, Binary Search Trees , Huffman's Algorithm.	15
	Total Hours	30

References:

1 Discrete Mathematics and its Applications Kenneth H. Rosen Tata MCGraw Hill 8th 2019

2 Discrete Mathematics, Schaum's Outline Series Seymour Lipschutz, Marc Lipson Tata MCGraw Hill 3rd 2007

3 Discrete Mathematics and its Applications Sussana S.Epp Cengage Learning 5th 2018

4 Discrete Mathematical Structures B Kolman RC Busby, S Ross PHI

5 Discrete structures Liu Tata MCGraw Hill

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Programme Name: **FYB.Sc(AI and ML)**	**Semester: I**
Course Category/Vertical: Skill Enhancement Course	
Name of the Dept: **Science and Technology**	
Course Title: Discrete Mathematics Practical	
Course Code: **BADP107**	Course Level: 4.5
Type: Practical	
Course Credit: 2 credits	
Hours Allotted: 60 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): 1. Course will make students understand different commands and functions of SCILAB. 2. To implement programs of set theory, functions, Recurrence relation. To represents concept of graph theory, directed graph, and their subtopics in the form of a program.	
Course Outcomes (OC): OC1. Implement programs on Inclusion Exclusion principle, power sets, recursively defined functions, Mathematical Induction Cardinality in scilab. Execute programs like Sum principle, Product principle, Factorial, Permutations and Combinations. OC2. Implement concepts in Scilab like paths and connectivity, minimum spanning tree, isomorphism, adjacency matrix, path matrix. Implement recurrence relations by iteration, Second order linear homogenous recurrence relations with constant coefficients.	
Description the course:	By using scilab code students able to solve mathematical Problems of sets, Permutations combinations, minimal spanning tree and shortest path, Graphs, recurrance relation.

Sr. No.	Content	Hours
1	**Set Theory** : Inclusion Exclusion principle, Power set , Mathematical Induction	
2	**Functions and Algorithm** : Recursively define function, cardinality, Polynomial evaluation, Greatest common divisor	
3	**Sequences:** Summation Notation, Product Notation, Mathematical Induction	
4	**Probability Theory:** Sample space and events, Finite Probability space, Addition Principal	
5	**Counting I:** Sum rule principle, Product rule principle, factorial, Binomial Coefficient	
6	**Counting II:** Permutations, Permutations with repetitions, Combinations, Combinations with repetitions.	
7	**Graph Theory:** Paths and Connectivity, Minimum Spanning Tree, Isomorphism	
8	**Directed Graph:** Adjacency Matrix, Path Matrix	
9	**Tree:** Minimum Spanning tree , Shortest path algorithm Kruskal or Prims	
10	**Recurrence Relation:** Solving linear homogeneous recurrence relation with constant coefficients.	
	Total Hours	**60**

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Programme Name: FYB.Sc(AI and ML)	**Semester: I**
Course Category/Vertical: Ability Enhancement Course	
Name of the Dept: **Science and Technology**	
Course Title: Corporate Communication I	
Course Code: **BAC108**	Course Level:4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives (CO): 1. To inculcate the knowledge of basic communication skills in learners and make learners aware of how non-verbal communication impacts daily communication. 3. To inculcate effective business writing skills in learners and create awareness about ethics in information	
Course Outcomes (OC): OC1: Learners would develop their basic communication skills and gain knowledge of how verbal and non-verbal communication impacts the business world. OC2: Develop effective business writing skills	
Description the course:	The course introduces learners to the basic concepts of communication required in personal and professional lives. It will assist them in making effective use of both verbal and non-verbal methodologies of communication. The course will inculcate effective writing skills in learners enabling them to overcome the communication challenges they may face in the corporate world. With these skills they can turn out to be communication experts and PR experts as well.

Unit No.	Content	Hours
I	**Fundamentals of Technical Communication** **Fundamentals of Technical Communication:** Introduction, The process of communication, Language as tool of communication, levels of communication, The flow of communication, Communication Networks, The importance of technical communication **Barriers to communication**: Definition of Noise, classification of Barriers **Non-verbal Communication**: Introduction, Definition, significance of nonverbal, forms of non-verbal communication, types of non-verbal communication **The Seven Cs of Effective Communication:** Completeness, Conciseness, Consideration, Concreteness, Clarity, Courtesy, Correctness **Meeting and conferences**: Introduction, Purpose of Meeting, planning a meeting, Meeting Process, Leading effective meeting, evaluating meeting, planning conference, teleconferencing. **Group Discussion and team presentation**: Introduction, Benefits of GD, Workplace GD guidelines, Functional and non-functional roles in GD, Improving group performance, Assessment of group discussion, Team presentation. **Email communication**: Introduction, Advantages of email, problems in email communication, Email etiquettes, Techniques of writing Effective Email	*15*
II	**Business Writing and Visual Aids** **Business writing**: Introduction, Importance of written Business, Five main strategies of writing business messages **Business correspondence**: Business letter writing, common component of Business letter, Strategies for writing body of a letter, Types of Business letter, writing memos. **Business reports and proposal**: What is a report? Steps in writing routine Business report, parts of reports, corporate reports and Business proposals **Careers and Resume**: Introduction to career building, resume format, traditional, electronic and video resumes, sending resume, follow-up letters and online recruitment process. **Creating and Using Visual Aids**: Object, Models, Handouts, Charts and Graphs, Text Visuals, Formatting Computer generated charts, graphs and visuals.	*15*
	Total Hours	*30*

References:

1. Technical communication: principles and practices Meenakshi Raman & Sangeeta Sharma Oxford Higher Education
2. Business Communication Meenakshi Raman & Prakash Singh Oxford- Higher Education 2nd edition 2006
3. Effective Business Communication Herta Murphy, Herbert Hildebrandt, Jane Thomas Tata McGraw Hill 7th edition 2008
4. Professional Communication Aruna Koneru McGraw Hill 2008
5. Business and Professional Communication Plans, Processes and Performance James R. DiSanza Nancy J. Legge Pearson Education 4 th Edition
6. Storytelling with data-a data visualization guide for business professionals Cole Nussbaumer knaflic Wiley

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Programme Name: **FYB.Sc.(AI and ML)**	**Semester:I**
Course Category/Vertical: Value Education Course	
Name of the Dept: **Science and Technology**	
Course Title: Green Technology-I	
Course Code: **BAG109**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): CO 1. Understand the concept of Green IT and impact of sustainability of computing applications, regulatory, non regulatory and other influences affecting business. CO 2. Understand Key sustainability challenges associated with data centers and strategies to make them more environmentally sustainable with in-depth coverage of energy-efficient storage technologies and data storage systems.	
Course Outcomes (OC): OC1. The learner studies emerging green IT regulations, energy management techniques, laws, standards and regulations related to Green IT. OC2. Develop knowledge about green data storage and data centers and how the choice of hardware and software can facilitate a more sustainable operation.	
Description the course:	The course introduces the learners to the concept of sustainable approach to IT resource management, focusing on minimizing environmental impact in the context of environmental concerns.The learners could upgrade their current understanding towards Green IT practices, reducing energy consumption and electronic waste, promoting efficient, cost-effective, and environmentally sustainable IT systems.Students would be able to explore new areas of IT professionals with expertise in Green IT.

Unit No.	Content	Hours
I	**Green IT An Overview** •Introduction, Environmental Concerns and Sustainable Development, Environmental Impacts of IT, Green IT, Applying IT for Enhancing Environmental Sustainability, Green IT Standards and Eco-Labelling of IT. •**Green Devices and Hardware** : Introduction, Life Cycle of a Device or Hardware, Reuse, Recycle and Dispose, Green Software ,Energy-Saving Software Techniques, •**Sustainable Software Development** : Introduction, Current Practices, Sustainable Software, Software Sustainability Attributes and Metrics Sustainable Software Methodology •**Regulating Green IT:** Laws, Standards and Protocols: Introduction, Introduction, Nonregulatory Government Initiatives, Industry Associations and Standards Bodies, Green Building Standards, Green Data Centres, Social Movements and Greenpeace	
II	•**Green Data Storage**: Introduction, Storage Media Power Characteristics, Energy Management Techniques for Hard Disks, System-Level Energy Management. Green Data Centres : Data Centres and Associated Energy Challenges, Data Centre IT Infrastructure, Data Centre Facility Infrastructure: Implications for Energy Efficiency, IT Infrastructure Management, Green Data Centre Metrics	
	Total Hours	30

References:

1.Green IT Toby Velte, Anthony Velte, & Robert Elsenpete McGraw Hill 2008

2. Harnessing Green It Principles And Practices San Murugesan, G.R. Gangadharan WILEY -

3. Green Data Center: Steps for the Journey Alvin Galea, Michael Schaefer, Mike Ebbers Shroff Publishers And Distributors 2011

4. Green Computing and Green IT Best Practice Jason Harris Emereo

5. Green Computing Tools and Techniques for Saving Energy, Money and Resources Bud E. Smith CRC Press 2014

Sheth T. J. Education Society's
Sheth N.K.T.T College of Commerce and
Sheth J.T.T College of Arts (AUTONOMOUS), Thane (W)

Programme Name: **FYB.Sc(AI and ML)**	**Semester: I**
Course Category: Indian Knowledge System	
Name of the Dept: **Science and Technology**	
Course Title: Evolution of Information Technology	
Course Code**: BAT110**	Course Level: 4.5
Type : Theory	
Course Credit: 2	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: 1. Make aware to Basics of Computer and various storage device 2. To study Concept of Hardware, Software and Networking devices and IT Act 2000.	
Course Outcomes: **OC1** - Study generations of Computer and basics of Internet and it applications **OC2** - Understand various software types and Basics of I.T. Act 2000	
Description the course:	Through this course, learners will embark on a fascinating exploration of the historical milestones, key innovations, and transformative trends that have shaped the IT landscape. From early mechanical computing devices to the advent of the internet, mobile computing, and artificial intelligence, participants will gain valuable insights into how IT has revolutionized communication, commerce, and daily life.

Unit No.	Content	Hours
I	**Computer Generation and its classification**: Introduction, What is Computer, Characteristics of computer, Evolution of Computer, Block Diagram of a computer, Generations of Computers. **Storage Devices:** Primary Vs Secondary Storage, Data storage & retrieval methods. Primary Storage: RAM ROM, PROM, EPROM, EEPROM. Secondary Storage: Magnetic Tapes, Magnetic Disks. Cartridge tape, hard disks, Floppy disks Optical Disks, Compact Disks, Zip Drive, Flash Drives **Software:** Software and its needs, Types of S/W. System Software: Operating System, Utility Programs Programming Language: Machine Language, Assembly Language, High Level Language, advantages & disadvantages of programming language. Application S/W and its types	15
II	**Communication:** Introduction, Communication Types (modes), Data Transmission Medias, Modem and its working, characteristics, Types of Networks, Topologies, Computer Protocols. **Internet and the World Wide Web:** What is Internet? Evolution of Internet, Internet service providers, Internet and its applications, E-mail, Telnet, FTP, domain name server, Internet address, World Wide Web (WWW): World Wide Web uniform resource locator (URL), Browsers–Internet Explorer, Netscape Navigator, Opera, Firefox, Chrome, Mozilla. **I.T. Act 2000:** Introduction of IT Act 2000, Offences in IT Act 2000, Various provisions of IT Act 2000.	15
	Total Hours	30

References:

1. Fundamentals of Computers V. Rajaraman and Neeharika A. PHI Learning Sixth 2015
2. Data communication and networking Behrouz. Forouzan Tata McGraw Hill 5th edition 2013
3. Cyber law simplified Vivek Sood Tata McGraw Hill

Scheme of Examination

Course with Credit	External Examination	Internal Examination	Total
Credit 4	**60 marks**	**40 marks**	**100 marks**
Credit 2	**30 marks**	**20 marks**	**50 marks**

Internal Examination Structure(Theory)

Internal examination	40 marks	20 marks
Project Presentation/Case Study /Quiz/Group Discussion	10 marks	5 marks
Assignment /Active class Participation/Attendance	10 marks	5 marks
Class test	20 marks	10 marks
Total	40 marks	20 marks

External Examination (For 60 Marks)

Q. No.	External	Marks: 60
Q .1 (From Module 1)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 2 (From Module 2)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 3 (From Module 3)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 4 (From Module 4)	Answer the following questions (Any 3) A B C	15 Marks

	D E F	

External Examination (For 30 Marks)

Q. No.	External	Marks: 60
Q .1 (From Module 1)	Answer the following questions (Any 3) A B C D E F	15 Marks
Q. 2 (From Module 2)	Answer the following questions (Any 3) A B C D E F	15 Marks

Practical Evaluation Internal: 20 marks

1	Problem Solving	10
2	Lab Work/Performance	5
3	Viva	5

Practical External Exam: 30 marks

A Certified copy journal is essential to appear for the practical examination.

1	Practical Question 1	10
2	Practical Question 2	5
3	Journal	5
4	Viva	5

OR

1	Practical Question 1	10
3	Journal	5
4	Viva	5