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

	Semester I Subjects	Credits		Semester II Subjects	Credits
Major			**Major**		
BAI101	Imperative Programming with C	2	**BAP201**	Python Programming	2
			BAD202	Probability and Distribution	2
BAS102	Statistical Data Analysis	2	**BARD203**	Python Programming and Probability and Distribution Practical	2
BAISP103	Imperative Programming with C and Statistical Data Analysis Practical	2			
Minor			**Minor BAC204**	Calculus	2
OE BAB104	OE 1: Basic Accounting and Practices	2	**OE BAF205**	OE1: Financial Markets	2
BAE105	OE2: Business Economics	2	**BAE206**	OE2: Digital Marketing	2
VSC BAD106	Discrete Mathematics	2	**VSC BAM207**	Database Management System	2
SEC BADP107	Discrete Mathematics Practical	2	**SEC BAMP208**	Database Management System Practical	2
AEC BAC108	Corporate communication-I	2	**AEC BACC209**	Corporate communication-II	2
VEC BAG109	Green Technology-I	2	**VEC BAG211**	Green Technology-II	2
IKS BAT110	Evolution of IT	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: II</td></tr>
<tr><td colspan="2">Course Category: Major</td></tr>
<tr><td colspan="2">Name of the Department: Science and Technology</td></tr>
<tr><td colspan="2">Course Title: Python Programming</td></tr>
<tr><td colspan="2">Course Code: BAP201 Course Level: 4.5</td></tr>
<tr><td colspan="2">Type: Theory</td></tr>
<tr><td colspan="2">Course Credit: 2</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:
1. Understand the concepts and usage data types, variables and other basic elements.
2. Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples.
3. Introduce data Science Tools and plot data using appropriate Python visualization libraries.</td></tr>
<tr><td colspan="2">Course Outcomes:
OC1: Aware of the basic elements of python and Implement functions, strings, lists, tuples and dictionaries.
OC2: Proficiency in using Numpy and Panda architecture for Data Science Applications.</td></tr>
<tr><td>Description the course:</td><td>Participants will discover the fundamentals of Python syntax, data types, control structures, and functions, enabling them to write clear, concise, and efficient code. Through hands-on exercises and projects, students will develop practical programming skills and gain confidence in solving real-world problems using Python.</td></tr>
</table>

Unit No.	Content	Hours
I	**Introduction:** The Python Programming Language, History, features, Data Types, Variables, operators, Input and Output Operations, Control Statements. **Functions and Strings:** Defining & Calling a Function, Returning Results, Built-in Functions, Creating Strings, Functions of Strings, Working with Strings, Length of a String, Indexing & Slicing, Repeating & Concatenation of Strings. **List, Tuples and Dictionaries:** Lists, List Functions and Methods, List Operations, Tuple Functions and Methods, Tuple Operations. Creating a Dictionary, Operators in Dictionary, Dictionary Methods, Using for Loop with Dictionaries, Operations on Dictionaries.	15
II	**Introduction to NumPy:** The Basics of NumPy Arrays, Computation on NumPy Arrays: Universal Functions, Aggregations: Min, Max, and Everything In Between. Computation on Arrays: Broadcasting, Comparisons, Masks, and Boolean Logic, Fancy Indexing, Sorting Arrays, Structured Data: NumPy's Structured Arrays **Data Manipulation with Pandas**: Introducing Pandas Objects, Data Indexing and Selection, Operating on Data in Pandas, Handling Missing Data, Hierarchical Indexing, Combining Datasets: Concat and Append, Combining Datasets: Merge and Join, Aggregation and Grouping, Pivot Tables, Vectorized String Operations, Working with Time Series. High-Performance Pandas: eval( ) and query( )	15
	Total Hours	30

References:

1. Think Python Allen Downey O'Reilly 1st 2012
2. Introduction to Problem Solving with Python E. Balagurusamy TMH 1st 2016
3. Let Us Python Y. Kanetkar, BPB 1st 2019
4. Python Data Science Handbook Jake VanderPlas O'Reilly Media 1st 2016

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category/Vertical: **Major**	
Name of the Department: **Science and Technology**	
Course Title: Probability and Distribution	
Course Code: **BAD202**	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. To explore about random variables and implement various distribution functions, to familiarize with concepts of probability. 2. Learn and implement the concept of expectation, related theorems, to know the concept and implementation of discrete distributions including Bernoulli, Binomial distributions to get acquainted with theory and practical implementation of concepts of continuous distributions.	
Course Outcomes (OC): (List the course outcomes) CO 1. After completion of the course, a student should be able to use discrete and continuous probability distributions, mean and variance. CO 2. Understand the concept of Mathematical Expectation and its properties, Different theoretical discrete distributions like Binomial, Bernoulli's, Poisson's and different theoretical continuous distribution like Uniform, Normal, Gamma, and Exponential.	
Description the course:	Probability Distribution is one of the important concepts in statistics. It has huge applications in business, Finance Investing science and other sectors. It is majorly used to make future predictions based on a sample for a random experiment.

Unit No.	Content	Hours
I	**Theory of Probability:** Introduction, History, Different terms Axiomatic approach to probability, Mathematical notation, independent events, multiplication law and conditional probability, Bayes theorem, **Random Variables and Distribution Functions**: Random Variable, distribution function, discrete random variable, continuous random variable, joint probability law.	15
II	**Mathematical Expectation:** Mathematical expectation and its properties, Expectation of a Function of a Random Variable, Addition Theorem of Expectation, Multiplication Theorem of Expectation, Conditional Expectation and Conditional Variance. **Theoretical Discrete Distributions**: Introduction, Bernoulli Distribution, Binomial Distribution, Poisson Distribution, Discrete Uniform Distribution. **Theoretical Continuous Distributions:** Rectangular or Uniform Distribution, Normal Distribution, Gamma Distribution, The Exponential Distribution.	15
	Total Hours	30

References:

Sr. No.	Title	Author/s	Publisher	Edition
1	Fundamentals of Mathematical statistics	S. C, Gupta and V. K. Kapoor	S. Chand and Sons	Tenth
2	Applied Statistics and Probability for Engineers	Douglas C. Montgomery and George C. Runger	Wiley	Sixth
3	Probability, Statistics, and Stochastic Processes	Peter Olofsson and Mikael Andersson	Wiley	second

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category/Vertical: Major	
Name of the Department: **Science and Technology**	
Course Title: Python Programming and Probability and Distribution Practical	
Course Code: **BARDP203**	Course Level: 4.5
Type: Practical	
Course Credit: 2	
Hours Allotted: 60 Hours	
Marks Allotted: 50 Marks	

Course Objectives (CO):

1. To learn about special operators, Arrays and lists and operation on them in Python.
2. To explore Dictionaries, Sets, Text processing and operation on them.
3. To understand Data Conversion, data categorization, selection of appropriate data category and Collection and to utilize excel based data modeling skills.
4. To compute Logical and Mathematical Averages, measures of dispersion, compute skewness, moments and kurtosis and to use graph from graphical tool.

Course Outcomes (OC):

OC1: Knowledge about input and output functions in python and have ability to use loops and control their execution

OC2: Ability to develop modular Programs using functions and data types like string, array and list of Python

OC3: Use Microsoft Excel for business and data analytics, applying insert function library, make use of "Add-Ins Tool pack" for different statistical and mathematical function, learn to use formula and function with cell reference and able to use different types of chart suitable to the data

OC4: Do Data Entry and manipulation using data context, to transpose the tabular data, convert data in to tabular format and able to use the excel tools for data categorization

Sr. No.	Content	Hours
I	**Introduction to Programming using Python**	
1	**Write the program for the following:**	
a	Enter the number from the user and depending on whether the number is even or odd, print out an appropriate message to the user.	
b	Write a program to generate the Fibonacci series.	
2	**Write the program for the following:**	
a	Write a function that reverses the user defined value.	
b	Write a function to check the input value is Armstrong and also write the function for Palindrome.	
c	Write a recursive function to print the factorial for a given number.	
3	**Functions**	
a	Write a Python program to define and use functions	
b	Write a Python program to demonstrate the use of Built-in Functions.	
4	**Strings**	
a	Write a Python Program to demonstrate operations and properties of string data types	
b	Write a Python Program implement and demonstrate the use of Membership operators and Identity operators	
5	**List**	
a	Write a Python Program to create list, apply various functions to it.	
b	Write a Python Program to demonstrate concept of aliasing and cloning	
6	**Tuples**	
a	Write a Python Program to implement tuples for storing data. Verify the immutability property on tuples	
7	**Dictionaries**	
a	Write a Python Program to implement Dictionary and operations on dictionaries	
b	Write a Python script to sort (ascending and descending) a dictionary by value.	
c	Write a Python script to concatenate following dictionaries to create a new one. Sample Dictionary : dic1={1:10, 2:20} dic2={3:30, 4:40} dic3={5:50,6:60} Expected Result : {1: 10, 2: 20, 3: 30, 4: 40, 5: 50, 6: 60}	
d	Write a Python program to sum all the items in a dictionary.	
8	**Using the NumPy Package**	
a	Programs using NumPy Package and different functions available in it.	
9	**Arrays**	
a	Write a Python Program to implement arrays for storing homogeneous data items. Apply indexing and slicing operations to access elements of array.	
10	**Using the pandas package**	
a	Programs using Pandas Package and different functions available in it.	

Unit No.	Content	Hours
1	**Discover Probability using formulas:** (a) Design and spreadsheet experiment to compute the probability by using formulas. (b) Create a spreadsheet application to compute the Conditional Probability, Independent events.	
2	**Bayes Theorem:** Formulate and apply Bayes' Theorem Calculations for problems like The "TwoSupplier Example".[Hint: Use Prior Probabilities and Conditional Probabilities to compute Joint and Posterior Probabilities]	
3	**Random Variables and Distribution Function:** Create spreadsheet application to Compute the Expected Value, Variance, and Standard Deviation of discrete and continuous random variables.	
4	**Joint Probability Distribution:** (a) Create a spreadsheet application to implement joint probability law. (b) Create a spreadsheet application to calculate the expected mean and variance for Joint probability Distribution.	
5	**Mathematical Expectation Addition and Multiplication theorem:** (a) Create a spreadsheet application to verify Addition theorem of expectation. (b) Create a spreadsheet application to verify Multiplication theorem of expectation.	
6	**Conditional Variance and Conditional variance:** Create a spreadsheet application to find conditional variance and conditional expectation.	
7	**Theoretical Discrete Distributions 1:** (a) Create spreadsheet application to demonstrate Bernoulli Distribution. (b) Create spreadsheet application to Calculate Binomial Distribution in Excel. **[Hint: Use BINOM.DIST]**	
8	**Theoretical Discrete Distributions 2:** (a) Create a spreadsheet application to Poisson Probability Distribution. **[Hint: Use POISSON]** (b) Create spreadsheet application to demonstrate Uniform Discrete Distribution.	
9	**Theoretical Continuous Distributions 1:**	

	(a) Create spread application for computing probabilities and z values for the standard normal distribution. **[Use NORMSDIST and NORMSINV]** (b) Create spreadsheet application to demonstrate Uniform Continuous Distribution.	
10	**Theoretical Continuous Distributions 2:** (a) Create spread application for computing probabilities for the Gamma probability distribution. **[Hint: Use GAMMA.DIST]** (b) Create spread application for computing probabilities for the exponential probability distribution. **[Hint: Use EXPONDIST].**	
	Total Hours	60

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category/Vertical: Minor	
Name of the Deparment**: Science and Technology**	
Course Title: Calculus	
Course Code: **BAC204**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): 1. To give the insight of calculus starting with continuity and derivatives. 2. To gain proficiency in integration.	
Course Outcomes (OC): **OC1:** Quickly and easily find the derivative of a function. **OC2:** Performing the integration of functions with ease	
Description the course:	The course introduces learners to understanding the sudden changes or spikes in the data by calculating its derivative and integration can then be applied to smooth the data by averaging or filtering out these fluctuations. Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.

Unit No.	Content	Hours
I	**Continuity and Derivatives:** Limits at Infinity; Horizontal Asymptotes, Derivatives and Rates of Change, The Derivative as a Function. **Differentiation rules**: Derivatives of Polynomials and Exponential Functions, The Product and Quotient Rules, The Chain Rule, Implicit Differentiation, Derivatives of Logarithmic Functions, Rates of Change in the Natural and Social Sciences, Exponential Growth and Decay, Related Rates, Linear Approximations and Differentials, Hyperbolic Functions	**15**
II	**Integrals:** Areas and distances, The Definite Integral, The Fundamental Theorem of Calculus ,Indefinite Integrals and the Net Change Theorem ,The Substitution Rule, Integration by Parts, Trigonometric Integrals , Trigonometric Substitution , Integration of Rational Functions by Partial Fractions , Strategy for Integration , Integration Using Tables and Computer Algebra Systems , Approximate Integration ,Improper Integrals.	**15**
	Total Hours	**30**

References:

1. Calculus– Early Transcend entals James Stewart Thomson 6 th edition 2008.
2. Calculus and Analytical Geometry by George B. Thomas Jr., Ross L. Finney M aurice D.Weir Addision Wesley Publishing Company 1998
3. Schaum's 3000 Solved Problems in Calculus Elliot Mendelson Tata Mc Graw Hill s1988

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category/Vertical: Open Elective I	
Name of the Department**: Science and Technology**	
Course Title: Financial Markets	
Course Code: **BAF205**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): 1. To provide students with the complete understanding of Indian financial Markets and its evolution. 2. To give an overview of financial markets, its classification and importance	
Course Outcomes (OC): **OC1:** After the successful completion of the course the student will have Knowledge about Indian financial Markets as well as a brief understanding of financial systems in other nations. **OC2:** Students will be aware about financial markets and its types.	
Description the course:	Basic Knowledge of Indian Financial Market, Types and Understanding of Financial System.

Unit No.	Content	Hours
I	**Indian Financial System and Financial Markets** An introduction to the financial system, Components of Financial System Financial Markets, Definition, Functions Classification: Primary Market & Secondary Market Financial Markets Structure, Financial instruments	15
II	**Commodity And Derivative Market** Introduction to Commodities Market - Meaning History & Origin, Types of Commodities Traded, Structure of Commodities Market in India Participants in Commodities Market, Introduction to Derivatives Market – Meaning, Elements of a Derivative Contract, Types of Derivatives, Types of Underlying Assets Participants in Derivatives Market, Difference Between Forwards & Futures	15
	Total Hours	30

References:

- Financial Services and Markets By Dr.S. Gurusamy- Thomson Publication
- Banking & Financial Markets in India By Niti Bhasin - New NC Century
- Indian Financial System By Dr.S.C.Bihari - International Book House Pvt Ltd
- Financial Institutions And Markets By Bhole and Mahakud – Mc Graw Hill

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Programme Name: **FYB.Sc (AI and ML)**	**Semester: II**
Course Category/Vertical: Open Elective	
Name of the Department: **Science and Technology**	
Course Title: Digital Marketing	
Course Code: **BAE206**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): 1. To acquaint the students with the knowledge of growing integration between the traditional and digital marketing concepts and practices in the digital era 2. To familiarize the students with the tools and techniques used by the digital marketers for driving the marketing decisions to attain marketing objectives.	
Course Outcomes (OC): **OC1:** Students will be able to understand the concept of digital marketing and its integration with traditional marketing. **OC2:** Students will be able to understand social media marketing and apply the learnings to create digital media campaigns, enhancing website position and ranking with search engines.	
Description the course:	Digital marketing comprises all marketing efforts that use the Internet. These include digital channels such as search engines, email, websites, social media, etc., that can be used to connect with current and prospective customers.

Unit No.	Content	Hours
I	**Introduction to digital marketing:** Meaning of Digital Marketing, Differences from Traditional Marketing, Return of Investments on Digital Marketing vs. Traditional Marketing, E Commerce, Tools used for successful marketing, SWOT Analysis of Business for Digital Marketing, Meaning of Blogs, Websites, Portal and Their Differences, Visibility, Visitor Engagement, Conversion Process, Retention, Performance Evaluation. **Search Engine Optimization (SEO):** On page Optimization Techniques, Off Page Optimization Techniques, Preparing Reports, Creating Search Campaigns, Creating Display Campaigns. **Social Media Optimization (SMO):** Introduction to Social Media Marketing, Advanced Facebook Marketing.	15
II	**Word press Blog Creation, Twitter Marketing, Linkedln Marketing, Instagram Marketing, social media Analytical Tools. Search Engine Marketing:** Meaning and Use of Search Engine Marketing, Tools used — Pay Per Click, Google Adwords, Display Advertising Techniques, Report Generation Website Traffic Analysis, Affiliate Marketing and Ad Designing: Google Analytics, Online Reputation Management, Email Marketing, Affiliate Marketing, Understanding Ad Words Algorithm, Advertisement Designing	15
	Total Hours	30

References:

1 Digital Marketing by Seema Gupta Mcgraw Hill

2 Internet Marketing : A practical approach in the Indian context, Oxford Publishing

3 Digital Marketing: Strategy, Implementation & Practice, Dave Chaffey & Fiona Ellis

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category: VSC	
Name of the Department**: Science and Technology**	
Course Title: Database Management System	
Course Code: **BAM207**	Course Level: 4.5
Type: Theory	
Course Credit: 2	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives: The objective of the course is to present an introduction to fundamentals of database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS	
Course Outcomes: **CO1:** Understand Database as s Relational model for Organizing, structuring, storing of data and SQL to retrieve data. **CO2:** To understand creation, manipulation and querying of data in databases.	
Description the course:	"Database Management System" introduces learners to the fundamental principles and practices of organizing, storing, and accessing data efficiently. This course provides a comprehensive overview of database concepts, including relational database design, SQL querying, normalization, and indexing. Participants will gain practical skills in designing, implementing, and managing databases to meet the information needs of businesses and organizations. Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.

Unit No.	Content	Hours
I	**Introduction:** Why Databases? Data versus Information, Introducing the Database, Role and Advantages of the DBMS, Types of Databases **Entity Relationship Model:** Conceptual modelling and database design: Data modelling using the Entity Relationship model (ER). The enhanced entity relationship model. Relational database design by ER and EER model. Practical database design methodology and use of UML diagrams. **Normalization of Database Tables:** Database Tables and Normalization, The Need for Normalization, The Normalization Process, Improving the Design, Surrogate Key Considerations, Higher Level Normal Forms, Normalization and Database Design, Denormalization, Data-Modeling Checklist	15
II	**Structured Query Language (SQL):** Introduction to SQL, Basic SELECT Queries, SELECT Statement Options, FROM Clause Options, ORDER BY Clause Options, WHERE Clause Options, Aggregate Processing, Subqueries, SQL Functions, Relational Set Operators, Crafting SELECT Queries. **Advanced SQL**: Data Definition Commands, Creating Table Structures, Altering Table Structures, Data Manipulation Commands, Virtual Tables: Creating a View, Sequences, Function and Procedural SQL. **Transaction Management and Concurrency Control**: What Is a Transaction? Concurrency Control with Locking Methods, Concurrency Control with Time Stamping Methods, Concurrency Control with Optimistic	15
	Total Hours	30

References:

1. Fundamentals of Database systems. Ramez Elmasri, Shamkant B Navathe Pearson. 6th Edition Introduction to Problem Solving with Python E. Balagurusamy TMH 1 st 2016
2. Database Management Systems, Ramakrishnam, Gehrke, McGraw Hill, 2007
3. The Programming Language of Oracle, 4th Revises Edition, Ivan Bayross
4. Oracle PL/SQL Programming, Steven Feuerstein with Bill Pribyl

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester: II**
Course Category: VSC	
Name of the Department**: Science and Technology**	
Course Title: Database Management System Practical	
Course Code: **BAMP208**	Course Level: 4.5
Type: Practical	
Course Credit: 2	
Hours Allotted: 60 Hours	
Marks Allotted: 50 Marks	
Course Objectives: The objective of the course is to present an introduction to fundamentals of database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS	
Course Outcomes: **CO1:** Understand Database as s Relational model for Organizing, structuring, storing of data and SQL to retrieve data. **CO2:** To understand creation, manipulation and querying of data in databases.	
Description the course:	"Database Management System" introduces learners to the fundamental principles and practices of organizing, storing, and accessing data efficiently. This course provides a comprehensive overview of database concepts, including relational database design, SQL querying, normalization, and indexing. Participants will gain practical skills in designing, implementing, and managing databases to meet the information needs of businesses and organizations. Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.

Sr. No.	Content
1.	**List of Practical: (Can be done in Oracle / SQL Server / MySQL)**
a	Draw E-R diagram and convert entities and relationships to relation table for a given scenario : Bank
b	College
2	**Write relational algebra queries for a given set of relations**
3	**Defining data**
a	Using CREATE statement
b	Using ALTER statement
c	Using DROP statement
d	Using TRUNCATE statement
e	Using RENAME statement
4	**Manipulating data**
a	Using INSERT statement
b	Using UPDATE statement
c	Using DELETE statement
d	Using SELECT statement
5	**Creating and managing the tables**
a	Creating table with contraints: NOTNULL, UNIQUE, PRIMARY KEY ,FOREIGN KEY
6	**Restricting and sorting data**
a	Using DISTINCT,IN, AS, SORT,LIKE,ISNULL, OR
b	Using Group By, Having clause, Order By clause
7	**Aggregate and Mathematical functions**
a	AVG,MIN,MAX,SUM,COUNT
b	ABS,SQRT,ROUND,TRUNCATE,SIGN,POWER,MOD,FLOOR,CEIL
8	**Views and Joins: For a given set of relation tables perform the following**
a	Creating view
b	Dropping view
c	Selecting from a view
9	**Database trigger**
a	Using CREATE OR REPLACE TRIGGER
10	**Functions and Procedures.**

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category/Vertical: AEC	
Name of the Department**: Science and Technology**	
Course Title: Corporate Communication – II	
Course Code: **BACC209**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives (CO): 1. To inculcate basic soft skills in learners and develop their leadership skills 2. To develop the overall personality of students by enabling them to adopt effective time management skills, becoming aware about emotional intelligence, learning about personal branding and make learners aware about basic etiquettes to be followed in personal and professional lives.	
Course Outcomes (OC): **OC 1:** Learners would develop effective soft skills and leadership skills and would be able to differentiate between listening and hearing and its impact on communication **OC 2:** Learners would develop their personality, learn time management skills, etiquettes, develop emotional intelligence along with their personal branding skills	
Description the course:	Soft Skills are an integral part of individual development. The course will introduce the learners to the soft skills required for communication in the business world as well as in personal lives. They would be able to showcase the same in the required scenarios in the professional world. Effective learning of soft skills would enable the learners to upgrade their skills and grab positions like soft skill trainers and personality grooming professionals. Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.

Unit No.	Content	Hours
I	**Introduction to Soft Skills – I** **Soft skills** – Meaning, features, scope, importance, relevance of soft skills in the corporate world, relevance of soft skills in personal space, Soft skills v/s hard skills **Listening skills** – Meaning, Importance, Essentials of good listening skills, Qualities of a good listener, Types of listening skills, Barriers to effective listening, Process of listening, Active v/s Passive Listening **Leadership** – Meaning, Attributes of a good leader, Styles of leadership, Leading through change	15
II	**Personality Development and Etiquettes** **Personality** – Meaning, Determinants of personality, Personality Traits – Locus of Control, Type A and Type B Personality, Machiavellianism, Self-Monitoring **Time Management** – Meaning, Importance, principles of time management, 4 P's, 4D's of time management, Challenges in time management, Tips for good time management. **Etiquettes** – Meaning, Importance, Ethics v/s Etiquettes. **Types of Etiquettes** – Telephone Etiquettes, Email Etiquettes, Meeting Etiquettes, Dining Etiquettes, Cubicle Etiquettes, Dressing and Grooming Etiquettes, Social media Etiquettes, Internet Etiquettes, Workplace Etiquettes	15
	Total Hours	30

References:

1. Daniel Coleman, Emotional Intelligence, Bantam Book, 20 ICT Academy of Kerala, "Life Skills for Engineers", McGraw Hill Education (India) PrivateLtd.,2016.

2. Caruso, D. R. and Salovey P, "The Emotionally Intelligent Manager: How to Develop and Use the Four Key Emotional Skills of Leadership", John Wiley & Sons, 2004.

3. Kalyana, "Soft Skill for Managers"; First Edition; Wiley Publishing Ltd, 2015.

4. Larry James, "The First Book of Life Skills"; First Edition, Embassy Books,2016.

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Programme Name: **F.Y.B.Sc(AI and ML)**	**Semester:II**
Course Category/Vertical: Value Education Course	
Name of the Department: **Science and Technology**	
Course Title: **Green Technology – II**	
Course Code: **BAG210**	Course Level: 4.5
Type: Theory	
Course Credit: 2 credits	
Hours Allotted: 30 Hours	
Marks Allotted: 50 Marks	
Course Objectives(CO): **1.** Understand issues and modern approaches of Green Computing and alternatives for cooling your data center and the need for making computer networks and communications energy efficient. **2.** Understand cloud computing in the context of environmental sustainability and various elements of clouds that contribute to total energy consumption	
Course Outcomes (OC): **OC 1**: Develop knowledge about the concept green IT standards and certifications related to sustainable IT products as well as Describe green IT in relation to technology. **OC 2:** Evaluate IT use in relation to environmental perspectives and Formulate plans for reducing IT heating and cooling requirements as well as Implement Green IT in Real Life.	
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. Introduction, relevance, Usefulness, Application, interest, connection with other courses, demand in the industry, job prospects etc.

Unit No.	Content	Hours
I	**Overview and Issues**: Problems: Toxins, Equipment Disposal, Company's Carbon Footprint: Measuring, Global Initiatives: United Nations, Basel Action Network, Basel Convention, North America: The United States, Canada, Australia, Europe, WEEE Directive, RoHS, National Adoption, Asia: Japan, China, Korea. **Minimizing Power Usage**: Power Problems, Monitoring Power Usage, Servers, Low-Cost Options, Power Consumption, Reducing Power Use, Data De-Duplication, Virtualization, Monitors, Power Supplies, Wireless Devices	15
II	**Cooling:** Cooling Costs, Power Cost, Causes of Cost, Calculating Cooling Needs, Reducing Cooling Costs, Economizers, On-Demand Cooling, HP's Solution, Optimizing Airflow, Hot Aisle/Cold Aisle, Raised Floors, Cable Management, Vapour Seal, Prevent Recirculation of Equipment Exhaust, Supply Air Directly to Heat Sources, Fans, Humidity, Adding Cooling, Fluid Considerations, System Design, Datacenter Design, Centralized Control, Design for Your Needs. **Green Networks and Communications:** Introduction, Objectives of Green Network Protocols, Green Network Protocols and Standards. **Green Cloud Computing and Environmental Sustainability:** Introduction, What is Cloud Computing? , Cloud Computing and Energy Usage Model: A Typical Example, Features of Clouds Enabling Green Computing, Green Cloud Architecture	15
	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 Computing Tools and Techniques for Saving Energy, Money and Resources Bud E. Smith CRC Press 2014

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

Structure for Class Test

For 10 marks	
Q1. Answer the following (Attempt any 2) **a.** **b.** **c.** **d.**	**10 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	15 Marks

	E F	
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 D E F	15 Marks

External Examination (For 30 Marks)

Q. No.	External	Marks: 30
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 1	10
3	Journal	5
4	Viva Voce	5

OR

1	Practical Question 1	20
2	Journal	5
3	Viva Voce	5