

AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Title of the Course: Data Structures & Algorithms

**Programme :
Bachelor of Science
(Data Science)**

Semester- II

**Syllabus for 4 Credits
From the Academic Year 2026-2027**

Name of the Course: Data Structures & Algorithms

Sr. No.	Heading	Particulars
1	Description of the Course :	A data structure is a format for organizing, processing, retrieving and storing data so it can be easily accessed and effectively used. There are various types of data structures in basic and advanced categories that are used in every program or application that is developed.
2	Vertical :	Major
3	Type :	Theory and Practical
4	Credit:	4 credits
5	Hours Allotted :	60 Hours
6	Marks Allotted:	100 Marks
7	Course Objectives: <ul style="list-style-type: none">• To understand the concept of data structures and its utility in computer system• To learn different data structures used in computer system• To learn implementation of different data structures through various algorithms• To learn the importance of analyzing the algorithms and methods to analyze it	
8	Course Outcomes: <ul style="list-style-type: none">• Learners will gain a deep understanding of data structures and will be able to implement abstract data types using arrays and linked lists.• Learners will be able to compare different types of data structures based on their characteristics and applications.• Learners will be able to design and implement various data structures through appropriate algorithms.• Learners will demonstrate logical and analytical thinking while implementing data structure algorithms using C programming.	

9

Modules:-**Module 1: Foundations of Data & Algorithms****(15 Hours)**

Data, Information & Abstraction: Data vs Information, Data structures: definition, need, and classification, Primitive vs Non-primitive data types, Abstract Data Types (ADT) with examples (List, Stack, Queue, Map, Set), Data structure vs File organization.

Algorithms & Analysis: What is an algorithm? Characteristics of good algorithms, Time and space complexity, Best, worst, and average case analysis, Asymptotic notations: **Big O**, **Big Ω** , **Big Θ** , Rate of growth of functions, Algorithm design principles: Divide and Conquer, Greedy approach, Dynamic Programming (introductory ideas).

Module 2: Arrays & Linked Lists**(15 Hours)**

Arrays: One-dimensional arrays and memory representation, Traversal, insertion, deletion, searching, sorting, Merging and splitting arrays, Multi-dimensional Arrays, 2D array representation (row-major, column-major), Sparse matrix and its storage (compressed format), Special matrices (diagonal, triangular, symmetric).

Linked Lists: Singly, Doubly, and Circular Linked List, Traversal, searching, insertion, deletion, Reversing a linked list, Merging and splitting linked lists, Applications: Polynomial representation, Sparse matrix representation.

Module 3: Stack & Queue**(15 Hours)**

Stack: Introduction, Operations on the Stack Memory Representation of Stack, Array Representation of Stack, Applications of Stack, Evaluation of Arithmetic Expression, Matching Parenthesis, infix and postfix operations, Recursion.

Queue: Introduction, Queue, Operations on the Queue, Memory Representation of Queue, Array representation of queue, Linked List Representation of Queue, Circular Queue, Some special kinds of queues, Deque, Priority Queue, Application of Priority Queue, Applications of Queues.

Module 4 : Searching, Sorting & Hashing**(15 Hours)**

Searching & Sorting Techniques: Linear search, Binary search, Indexed sequential search, Bubble sort, Selection sort, Insertion sort, Merge sort, Quick sort, Heap sort.

Hashing: Techniques Hash function, Address calculation techniques, Common hashing functions Collision resolution, Linear probing, Quadratic, Double hashing, Bucket hashing, Deletion and rehashing

10	Reference Books: <ul style="list-style-type: none"> • Leen Ammeral, Programmes and Data Structures in C, Wiley Professional Computing • G.W Rowe, Introduction to Data Structure and Algorithms with C and C++ , prentice Hall India • R.L Kruse, B.P. Leung, C.L. Tondo, Data Structure and Program Design in C Prentice-Hall India • Author: Maria Rukadikar, Title : Data Structure and Algorithm, Publisher: SPD 1 st Edition, Year: 2017 	
11	Internal Continuous Assessment: 40%	Semester End Examination : 60%
12	Continuous Evaluation through: <p style="text-align: center;">Practical Examination 40 Marks</p>	
13	<p style="text-align: center;">Question Paper Pattern for Semester End Examination Maximum Marks: 60 Duration: 2 Hrs. Note: All questions are compulsory. Each question has an internal choice.</p> <p style="text-align: center;"><i>[Refer to Next Page]</i></p>	

Question Number	Nature of Questions		Maximum Marks
1)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
2)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
3)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
4)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		

Signatures of Team Members

Sr.No	Name	Signature
1.	Mr. Deepak Sharma	
2.	Ms. Malik Sabiha	
3.	Ms. Vibhuti Barad	

AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Title of the Course: Data Analysis Using Python

**Programme:
Bachelor of Science
(Data Science)**

Semester- II

**Syllabus for 2 Credits
From the Academic Year 2026-2027**

Name of the Course: Data Analysis Using Python

Sr. No.	Heading	Particulars
1	Description of the Course :	This course introduces students to the fundamentals of Python programming for data analysis. It covers basic programming concepts, data handling using NumPy and Pandas, data cleaning techniques, and data visualization using Python libraries. Students will learn how to explore datasets, perform basic statistical analysis, and generate visual insights from data through practical exercises and a small data analysis task using Jupyter Notebook.
2	Vertical :	Major
3	Type :	Theory and Practical
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives: Enable learners to : <ol style="list-style-type: none">1. fundamentals of Python programming and its application in data handling and analysis using libraries such as NumPy and Pandas.2. develop the ability to explore, clean, analyze, and visualize datasets using Python tools in order to derive meaningful insights from data.	
8	Course Outcomes: Learners will be able to : <ol style="list-style-type: none">1. apply python programming concepts and use libraries such as NumPy and Pandas to load, manipulate, and clean datasets.2. perform basic data analysis and create visualizations to interpret patterns, relationships, and insights from data.	

Module 1: Python Basics & Working with Data**(15 Hours)**

- Introduction to Python and its role in data analysis, installation of Python and working with Jupyter Notebook for performing interactive data analysis tasks. Understanding variables and basic data types (int, float, str, bool) and how they are used for storing and processing data. Use of basic operators (arithmetic, comparison, logical) for performing data calculations and comparisons. Writing conditional statements (if, elif, else) to support simple data-based decision making and using loops (for and while) for repetitive data processing tasks. Creating functions for reusable data operations and simple data processing workflows. Understanding Python data structures such as lists and dictionaries for organizing and managing datasets. Introduction to NumPy as a library for numerical data analysis including creating arrays, performing basic array operations, indexing and slicing data, and performing simple statistical operations using NumPy such as sum, mean and standard deviation.
- Introduction to Pandas for data analysis and dataset handling. Loading datasets using read_csv(), exploring datasets using head(), tail(), shape, info(), and describe() to understand dataset structure and summary statistics. Selecting and filtering data based on conditions for analysis purposes. Introduction to data cleaning techniques including identifying missing values using isnull(), handling missing values using fillna() and dropna(), sorting data using sort_values(), renaming columns using rename(), and saving cleaned datasets using to_csv() for further analysis. Introduction to data visualization for understanding patterns and trends in data. Creating basic charts using Python such as line charts, bar charts, histograms and scatter plots, performing basic chart customization including title, axis labels, legend and figure size, and saving charts using savefig().

Module 2: Data Analysis & Insights with Python**(15 Hours)**

- Performing data exploration and summarization using Pandas to understand dataset characteristics. Understanding different types of data including numerical and categorical variables and analyzing categorical data using value_counts(). Grouping and aggregating data using groupby() with functions such as sum(), mean() and count() to generate summarized insights. Creating and modifying columns in datasets, replacing values using replace(), removing duplicate records using drop_duplicates(), and converting data types using astype() for better data consistency. Performing basic string operations on textual data using functions such as str.upper(), str.lower() and str.contains() for data cleaning and preparation.

- Introduction to descriptive statistics for understanding data distributions including mean, median, mode, minimum, maximum, range, variance and standard deviation. Understanding relationships between variables using correlation analysis to identify possible patterns. Introduction to exploratory data analysis (EDA) for discovering trends, patterns and anomalies in data. Identifying outliers using boxplots and understanding their impact on analysis. Visualizing data using Seaborn including countplot, barplot, boxplot and heatmap to better understand relationships and distributions within datasets. Performing basic chart customization and interpretation of charts to derive meaningful insights.

Question Number	Nature of Questions		Maximum Marks
1)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
2)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		

Signatures of Team Members

Sr.No	Name	Signature
1.	Mr. Deepak Sharma	
2.	Ms. Malik Sabiha	
3.	Ms. Vibhuti Barad	

Approved by the Academic Council on 14-3-26 item no. 04

Approved by the BoS in Maths

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Title of the Course: Introduction to Calculus

Programme: Bachelor of Science (Data Science)

(Semester – II)

Syllabus for 4 Credit Course

From the Academic Year 2026 – 2027

Name of the Course: Introduction to Calculus

Sr. No.	Heading	Particulars
1	Description of the course:	<p>“Introduction to Calculus” is a foundational course in mathematics that introduces students to the fundamental concepts of calculus, including limits, derivatives, and integrals. It serves as a gateway to higher-level mathematics courses and is essential for understanding various quantitative disciplines such as physics, engineering, economics, and computer science. Industries that heavily rely on quantitative analysis, such as finance, engineering, and data science, have a high demand for individuals proficient in calculus.</p>
2	Vertical:	Major
3	Type:	Theory/Practical
4	Credit:	2 Credits (1 Credit = 15 Hours for Theory in a Semester)
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks Continuous Evaluation 20 Marks Semester End Examination 30 Marks
7	Course Objectives: The course aims to: <ol style="list-style-type: none"> Students should grasp the concept of limits and be able to evaluate limits algebraically and graphically. Students should be able to apply differentiation to solve problems involving optimization, related rates, and curve sketching. 	
8	Course Outcomes: After successful completion of the course, learners will be able to: <ol style="list-style-type: none"> Students will be able to compute limits of functions, understanding the concept of continuity and its relationship to limits. Students will understand the concepts of sequences and series, including convergence tests for series, Taylor and Maclaurin series, and power series representations of functions. 	
9	Modules	
	Modules I: Real Numbers and Sequences (15 Hours)	
	<ul style="list-style-type: none"> The Algebraic and Order properties of \mathbb{R} and Well Ordering Principle Absolute value and Real line, Absolute Value Functions And Its Properties, Triangle Inequality, Neighborhood Of A Point On The Real Line Sequences and their Limits, Definition And Examples Of Sequences Of Real Numbers, Uniqueness Of Limit, Bounded Sequence, Convergent Sequence Monotone Sequence, Definition And Examples, Monotone Convergence theorem and examples 	
	Module II: Limits and Continuity (15 Hours)	
	<ul style="list-style-type: none"> Functions and their graphs, Functions, Domain, Range, Graphs representing a function numerically, Vertical line Test Increasing and Decreasing functions, Even And Odd Functions with their examples Algebra of Limits, One Sided Limit, Infinite Limit Continuous functions, Properties of continuous functions on an interval, Boundedness theorem, The Maximum-Minimum theorem 	

10	<p>Reference Books:</p> <ul style="list-style-type: none"> • <i>Goldberg, R.R. Methods of Real Analysis. 1976.</i> • <i>Apostol, T.M. Calculus. Wiley & Sons Pvt Ltd, 1975.</i> • <i>Ghorpade, J.P., and Limaye. A Course in Calculus and Real Analysis. Springer International Ltd, 2021.</i> • <i>Kumar, Ajit, and Kumaresan. A Basic Course in Real Analysis. CRC Press, 2014.</i> • <i>Narayan, Shanti, and Mittal. A Course in Mathematical Analysis. S. Chand and Co, 2005.</i>
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Evaluation Pattern

Continuous Evaluation: 40%
Semester End Examination: 60%

The Continuous evaluation will consist of

	Total Marks
Class Test/ Assignment/ Practical/ Project Work/ Presentation/ Case Study/ Book Review	20

Semester End Examination Question Paper Pattern

Maximum Marks: 30

Duration: 01 Hour

All Questions are Compulsory Carrying 15 Marks each.

Q. No.	Particular	Marks
Q-1	Q. 1 Attempt any Three (15 marks) a. b. c. d.	15 Marks
Q-2	Q. 2 Attempt any Three (15 marks) a. b. c. d.	15 Marks

Signature of Team Members

Sr. No.	Name	Signature
1	Ms. Shubha Chaubal	
2	Ms. Priyanka Malvankar	

AC

Item No.

As per NEP 2020

Tolani College of Commerce

(Autonomous)



Title of the Course : Descriptive Statistics

Programmes: Bachelor of Commerce (Taxation and Auditing)- Semester - I

Syllabus for 4 Credits Course from the academic year- 2026-2027

Sr. No.	Heading	Particulars
1	Description of the course:	Descriptive Statistics is an essential branch of applied statistics that enables students to understand, summarize, and analyze business and financial data effectively. The course provides a foundation for data-based decision-making in taxation, auditing, and commerce. It focuses on presenting data through tables, charts, and key numerical summaries like averages and measures of variation.
2	Vertical :	Open Elective
3	Type :	Theory / Practical
4	Credit:	4 credits (3 Credits = Theory and 1 Credit = Practical Work)
5	Hours Allotted :	60 Hours
6	Marks Allotted:	Total 100 Marks Continuous Evaluation 40 Marks Semester End Examination 60 Marks
7	Course Objectives:	<ul style="list-style-type: none"> ● To introduce students to the basic concepts and importance of descriptive statistics in taxation and auditing. ● To enable students to classify, tabulate, and present data in meaningful ways ● To develop skills in computing and interpreting measures of central tendency and dispersion. ● To equip students with statistical tools like correlation and index numbers for decision-making in business and auditing.
8	Course Outcomes:	

	<ul style="list-style-type: none"> ● Students will understand the relevance of descriptive statistics in accounting, auditing, and taxation. ● Students will acquire skills to summarize and interpret business data. ● Students will learn to apply statistical tools for analyzing financial trends. ● . To equip students with statistical tools like correlation and index numbers for decision-making in business and auditing. 	
9	Module I: Introduction to Statistics and Data Presentation (15 Hours)	
	<ul style="list-style-type: none"> ● Meaning, Definition, Functions, and Importance of Statistics ● Role of Statistics in Business, Taxation, and Auditing ● Types of Data – Primary and Secondary Data ● Methods of Data Collection – Classification and Tabulation of Data – Frequency Distribution 	
	Module II : Measures of Central Tendency	
	<ul style="list-style-type: none"> ● Meaning and Importance – Characteristics of a Good Average ● Arithmetic Mean , Median, Mode (For Grouped and Ungrouped Data) ● Quartiles, Deciles, and Percentiles ● Business Applications of Averages in Taxation and Auditing. 	
9	Module 3: Measure of Dispersion (15 Hours)	
	<ul style="list-style-type: none"> ● Meaning and Importance of Dispersion – Absolute and Relative Measures ● Range, Quartile Deviation, Mean Deviation from Mean, Median and Mode ● Standard Deviation ● Variance and Coefficient of Variation 	
	Module 4: Time Series and Index Number (15 Hours)	
	<ul style="list-style-type: none"> ● Concepts and Components of Time Series, Estimation of Trend using Moving Average Method and Least Square Method (Linear Trend only) ● Concepts and Components of Time Series Representation of Trend by Freehand Curve Method, Estimation of Trend using Moving Average Method and Least Square Method (Linear Trend only) ● Concept and usage of Index Numbers, Types of Index Numbers, Aggregate And Relative Index Numbers, Laspeyer’s, Paasche’s , Dorbish and Bowley’s ,Marshall and Edgeworth’s and Fisher's Ideal Index Numbers, – Cost of Living Index and its Applications in Taxation and Auditing 	
10	Reference Books	
	<ol style="list-style-type: none"> 1. B Aggarwal, Business Mathematics & Statistics: B Aggarwal, Ane Book Pvt. Limited, 2016 2. Gupta, S.C. & Kapoor, V.K. - Fundamentals of Mathematical Statistical, Sultan Chand and Sons 3. J.K. Sharma, Business Statistics, Pearson Education 4. Naval Bajpai, Business Statistics, Pearson Education 	
11	Internal Continuous Assessment: 40%	Semester End Examination : 60%
12	Continuous Evaluation through:	Assignments and Practical
13	Format of Question Paper:	
	Q. 1 Attempt any Three (15 marks)	
	a.	
	b.	

	<p>c. d. Q. 2 Attempt any Three (15 marks)</p> <p>a. b. c. d. Q. 3 Attempt any Three (15 marks)</p> <p>a. b. c. d. Q. 4 Attempt any Three (15 marks)</p> <p>a. b. c. d.</p>
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Signatures of Team Members

Sr.No	Name	Signature
1.	Ms. Shubha Chaubal	
2.	Ms. Priyanka Malvankar	

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As Per NEP 2020

Tolani College of Commerce (Autonomous)



Knowledge is Supreme

Title of the Course: Exploratory Data Analysis

**Programme:
Bachelor of Science
(Data Science)**

Semester- II

**Syllabus for 2 Credits
From the Academic Year 2026-2027**

Name of the Course: Exploratory Data Analysis

Sr. No.	Heading	Particulars
1	Description of the Course :	The course focuses on understanding data through statistical summaries and visual techniques before applying advanced analytical models. Students will learn how to acquire, clean, and preprocess real-world data, handle missing values, and transform data for meaningful analysis. The course emphasizes univariate, bivariate, and multivariate analysis using descriptive statistics and visualization tools such as histograms, box plots, scatter plots, and heatmaps.
2	Vertical :	Minor
3	Type :	Theory and Practical
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives: Enable Learners to : <ol style="list-style-type: none">1. develop understanding of Exploratory Data Analysis and its importance in data-driven decision making.2. apply statistical and visualization techniques using Python or R for analyzing real-world datasets.	
8	Course Outcomes: Learners will be able to <ol style="list-style-type: none">1. perform data preprocessing, univariate, bivariate, and multivariate analysis using appropriate statistical tools and visualizations.2. use libraries such as Pandas, Matplotlib, Seaborn (Python) or tidyverse and ggplot2 (R) to analyze data and present meaningful insights effectively.	

9

Modules:-

Module 1: Foundations of Exploratory Data Analysis

(15 Hours)

Concepts of EDA: Meaning and importance of Exploratory Data Analysis in Data Science, Role of EDA in decision making and problem understanding.

Types of Data & Data Handling: Types of data: Numerical, Categorical, Time Series, Data acquisition from real-world sources, Data cleaning and preprocessing, Handling missing values, Data formatting and consistency checks.

Descriptive & Univariate Analysis: Measures of central tendency: Mean, Median, Mode, Measures of dispersion: Variance, Standard Deviation, Measures of shape: Skewness and Kurtosis, Visualization of single variables using: Histograms, Box plots, Density plots.

Module 2: Relationship Analysis & Practical EDA

(15 Hours)

Bivariate Analysis and Relationships: Concept of Bivariate Analysis, Correlation and covariance, Scatter plots to analyze relationships between two variables.

Multivariate Analysis and Visualization: Concept of Multivariate Analysis, Heatmaps for correlation matrices, Pair plots for multi-variable comparison, Identifying patterns among three or more variables

Categorical–Numerical Data Analysis: Analysis of categorical and numerical variables together, Grouped plots for comparative analysis, Pivot tables for data summarization and interpretation

10	Reference Books: <ul style="list-style-type: none"> • Exploratory Data Analysis Using R by Ronald K. Pearson – Focused on exploratory analysis with R, including graphical summaries and identifying data anomalies. • Hands-On Exploratory Data Analysis with Python by Suresh Kumar Mukhiya & Usman Ahmed – Practical Python book with examples using Pandas, NumPy, Matplotlib, etc. 	
11	Internal Continuous Assessment: 20%	Semester End Examination : 30%
12	Continuous Evaluation through: <p style="text-align: center;">Practical Examination 20 Marks</p>	
13	<p style="text-align: center;">Question Paper Pattern for Semester End Examination Maximum Marks: 30 Duration: 1 Hr. Note: All questions are compulsory. Each question has an internal choice.</p> <p style="text-align: center;"><i>[Refer to Next Page]</i></p>	

Question Number	Nature of Questions		Maximum Marks
1)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
2)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		

Signatures of Team Members

Sr.No	Name	Signature
1.	Mr. Deepak Sharma	
2.	Ms. Malik Sabiha	
3.	Ms. Vibhuti Barad	

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ITEM NO

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Knowledge is Supreme

**Title of the Course: Fraud Detection: Investigation and Prevention
Programmes: Bachelor of Commerce (Taxation and Auditing)/ Bachelor
of Science (Data Science)**

Semester: II

**Syllabus for 4 Credit Course
From the academic year: 2026-2027**

Name of the Course: Fraud Detection: Investigation and Prevention

Sr. No.	Heading	Particulars
1	Description of the course:	<p>Any organization's ability to succeed and endure depends on its robust governance framework, culture of compliance, internal controls, and associated systems and procedures. The board of directors and senior management provide strategic direction to an organization in order to help it achieve its goals, which include maximising stakeholders' wealth. Employers and other resources are necessary for organizations to meet their targets and goals. The staff members belong to distinct tiers of the hierarchy, including upper, medium, and lower management. In order to manage the business's operations, these staff members must adhere to policies and procedures and be given a variety of physical resources. There may be fraudsters or crooks among the staff as well as outside the corporation who take advantage of the resources of the company. These actions are regarded as fraudulent.</p> <p>The goal of fraud investigations is to determine what actions were taken, by whom, and how. Not only is there a chance of not being able to recover losses if an inquiry is done poorly. There's also a chance of fines, legal bills, and reputational harm. Fraud investigations are comprehensive, quick, accurate, and compliant when these skills and information are applied.</p>
2	Vertical:	Open Elective
3	Type:	Theory
4	Credit:	4 Credits
5	Hours Allotted:	60 Hours
6	Marks Allotted:	100 Marks Continuous Evaluation: 40 Semester-End: 60
7	Learning Objectives	<ul style="list-style-type: none"> • Gain relevant knowledge regarding fraud, including its types, fraudsters, detection, cost, deterrence, and investigation methods • Learn what constitutes fraud and become familiar with instances of it, such as payroll fraud, false invoicing, and theft of property, inventory, or cash.

	<ul style="list-style-type: none"> • Acquire knowledge of the many essential ideas surrounding the process of investigating fraud and fraud detection. • The numerous methods employed in the inquiry and making aware of every step of the fraud investigation process.
8	<p>Learning Outcomes Enables the learners to</p> <ul style="list-style-type: none"> • Acquire relevant knowledge about organizational fraud detection as well as fraud investigation. • Understand fraud, types of frauds, fraud deterrence, • Understand fraud detection, fraud investigations process. • Understand fraud investigation conclusion, and fraud investigation reporting.

9	<p>Syllabus</p>
	<p>Module.1. Understanding Fraud, Fraudsters (15 Hours)</p> <ul style="list-style-type: none"> • What is Fraud? • What is the Scale of the Problem? • Why Does it Matter to Understand Fraudsters? • The Fraud Triangle – The Key Behavioral Mode • Motives of Fraudsters – Bringing the Fraud • Triangle Up to Date
	<p>Module.2. Fraudulent Behavior and Types of Fraud (15 Hours)</p> <ul style="list-style-type: none"> • Fraudulent behaviour • Classification of Fraudsters • Profile of a Fraudster • Motives of Fraudsters – The Business • Perspective • Types of Fraud
	<p>Module.3. Fraud Identification and Detection (15 Marks)</p> <ul style="list-style-type: none"> • The Deterrence Factor • Fraud Detection • Methods of Fraud Detection • Fraud Indicators • The Role of Internal Audit and External Audit • The Fraud Investigation Process
	<p>Module.4. Fraud Investigation Process and Techniques (15 Hours)</p> <ul style="list-style-type: none"> • The Fraud Investigation Process • Handling Initial Allegations or Indicia for Fraud • Designing and Planning of the Fraud • Investigation and Gathering of Evidence • Evidence Review

	<ul style="list-style-type: none"> Fraud Investigation and Investigative Tools 														
10	References <ol style="list-style-type: none"> CA Virendra K. Pamecha. How To Detect & Investigate - Financial Frauds & Accounting Gimmicks Along with Professional Opportunities in Fraud Avoidance & Investigation published by Xcess Infostore Private Limited. ISBN-13 978-8194522188. Charles E. Piper. Contract and Procurement Fraud Investigation Guidebook published by Routledge Taylor and Francis Group. ISBN-13 978-1138044982. Stamler Rodney T., Marschdorf Hans J and Possamai Mario. Fraud Prevention and Detection published by Taylor & Francis Ltd. ISBN: 9780367867324, 9780367867324. Sunder Gee. Fraud and Fraud Detection: A Data Analytics Approach by. Published by Wiley Online Library. Print ISBN:9781118779651 Online ISBN:9781118936764. 														
11	Internal Continuous Assessment: 40%	Semester End Examination: 60%													
12	Continuous Evaluation through: <table border="1"> <thead> <tr> <th>Sub-components</th> <th>Maximum Marks</th> <th rowspan="6">Conditions for passing a) A learner must be present for each of the sub-components.</th> </tr> </thead> <tbody> <tr> <td>1) 1st Project/ Report work</td> <td>10</td> </tr> <tr> <td>2) 2nd Project/ Report work</td> <td>10</td> </tr> <tr> <td>3) Case Study analyses in the classroom</td> <td>10</td> </tr> <tr> <td>4) 10 Objective Questions (1 MCQ of 1 mark each)</td> <td>10</td> </tr> <tr> <td>Total</td> <td>40</td> </tr> </tbody> </table>		Sub-components	Maximum Marks	Conditions for passing a) A learner must be present for each of the sub-components.	1) 1 st Project/ Report work	10	2) 2 nd Project/ Report work	10	3) Case Study analyses in the classroom	10	4) 10 Objective Questions (1 MCQ of 1 mark each)	10	Total	40
Sub-components	Maximum Marks	Conditions for passing a) A learner must be present for each of the sub-components.													
1) 1 st Project/ Report work	10														
2) 2 nd Project/ Report work	10														
3) Case Study analyses in the classroom	10														
4) 10 Objective Questions (1 MCQ of 1 mark each)	10														
Total	40														
13	Format of question paper Maximum Marks: 60 Duration: 2 Hour. All Questions are Compulsory Carrying 15 Marks each. <table border="1"> <thead> <tr> <th>Question No</th> <th>Particular</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Q-1</td> <td>(From Module I) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)</td> <td>15 Marks</td> </tr> <tr> <td>Q-2</td> <td>(From Module II) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)</td> <td>15 Marks</td> </tr> <tr> <td>Q-3</td> <td>(From Module III) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)</td> <td>15 Marks</td> </tr> </tbody> </table>		Question No	Particular	Marks	Q-1	(From Module I) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks	Q-2	(From Module II) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks	Q-3	(From Module III) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks	
Question No	Particular	Marks													
Q-1	(From Module I) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks													
Q-2	(From Module II) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks													
Q-3	(From Module III) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks													

	Q-4	(From Module IV) a. Theory (Case Study according to Bloom taxonomy) (08 Marks) b. Theory (07 Marks) OR c. Theory (Case Study according to Bloom taxonomy) (08 Marks) d. Theory (07 Marks)	15 Marks	
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Signature/s of Team Member/s

Sr.No	Name	Signature
1.	Dr. Hema Mehta	

AC –
Item No. –



Knowledge is Supreme

Title of the Course: Human Resource Management

**Programme: B.Sc. (Data Science)
Semester - II**

Syllabus for 4 credits

From the Academic Year 2026 - 2027

Name of the Course: Human Resource Management

Sr. No.	Heading	Particulars
1	Description the course:	This course provides an overview of functions of human resource management about how organizations acquire, develop and manage their employees. The course focuses on providing general understanding of all the HR roles related to the employee life cycle management.
2	Vertical:	Open Electives
3	Type:	Theory
4	Credit:	4
5	Hours Allotted:	60 Hours
6	Marks Allotted:	Total 100 Marks Continuous Evaluation 40 Marks Semester End Examination 60 Marks
7	Course Objectives:	<ol style="list-style-type: none">1. To understand the concepts, functions, and strategic significance of Human Resource Management in modern organizations.2. To analyze human resource planning, job analysis, job design, recruitment, and selection processes for effective workforce management.3. To apply training, development, performance appraisal, and career planning practices to enhance employee capability and organizational growth.4. To evaluate training effectiveness, performance outcomes, and potential appraisal methods for continuous improvement.
8	Course Outcomes:	<ol style="list-style-type: none">1. Learners will be able to understand the concepts, functions, and strategic significance of Human Resource Management in modern organizations.2. Learners will be able to analyze human resource planning, job analysis, job design, recruitment, and selection processes for effective workforce management.3. Learners will be able to apply training, development, performance appraisal, and career planning practices to enhance employee capability and organizational growth.4. Learners will be able to evaluate training effectiveness, performance outcomes, and potential appraisal methods for continuous improvement.

Module 1: Human Resource Management (15 Hours)

- **Human Resource Management** – Concept, Functions, Importance, Traditional v/s Strategic Human Resource Management, **Introduction to HR Analytics**
- **Human Resource Planning** - Concept Steps in Human Resource Planning, **Workforce analytics and demand forecasting**
Job Analysis-Concept, Components, Job design- Concept, Techniques, **Use of data in job design and workforce optimization**
- **Recruitment** - Concept, Sources of Recruitment Selection - Concept, process, Techniques of E-selection, **AI-based recruitment and algorithmic hiring systems**

Module 2: Human Resource Development (15 Hours)

- **Human Resource Development** - Concept, functions
Training - Concept, Process of identifying training and development needs, Methods of Training & Development (Apprenticeship, understudy, job rotation, vestibule training, case study, role playing, sensitivity training, In, basket, management games), **Learning analytics and digital training platforms**
Evaluating training effectiveness - Concept, Methods, **Data-driven evaluation of training programs**
- **Performance Appraisal** - Concept, Benefits, Limitations, Methods' Potential Appraisal- Concept, Importance, **Performance analytics and KPI dashboards**
- **Career Planning** - Concept, Importance, Succession Planning- Concept, Need Mentoring- Concept, Importance Counselling- Concept, Techniques.

Module 3: Human Relations (15 Hours)

- **Human Relations** - Concept, Significance, Leadership –Concept, Transactional & Transformational Leadership, **Leadership in digital and AI-driven organizations**
- **Motivation** - Concept, Theories of Motivation, (Maslow's Need Hierarchy Theory, Vroom's Expectancy Theory, McGregor's Theory X and Theory Y, Pink's Theory of Motivation)
- **Employees Morale** - Concept, Factors affecting Morale, Measurement of Employees Morale, **Employee engagement analytics**
Emotional Quotient and Spiritual Quotient- Concept, Factors affecting EQ & SQ
- **Employee Grievance** - Causes, Procedure for Grievance redressal, Employee welfare measures and Health & Safety Measures, **Well-being analytics and workplace mental health**

Module 4: Trends In Human Resource Management (15 Hours)

- **HR in changing environment** - Competencies- concept, classification. Learning organizations- Concept, Creating an innovative organization, Innovation culture- Concept, Need, Managerial role.
- **Trends in Human Resource Management** - Employee Engagement- Concept, Types. Human resource Information System (HRIS) – Concept, Importance, Changing patterns of employment.

People Analytics and Data-driven HR decision making, AI and Automation in HR

- **Challenges in Human Resource Management** - Employee Empowerment, Workforce Diversity, Attrition, Downsizing, Employee Absenteeism, Work life Balance, Sexual Harassment at work place, Domestic and International HR Practices, Millennial (Gen Y) Competency Mapping, **Ethical issues in AI-based HR systems**

10	References: <ol style="list-style-type: none"> 1. Aswathappa K., Human Resource Management, Tata McGraw Hill, New Delhi, 8th edition, 2017 2. Belkaoui, A.R. and Belkaoui, JM, Human Resource Valuation: A Guide to Strategies and Techniques, Quarum Books, Greenwood, 1995. 3. Bernardin, H. John, Human Resource Management, Tata McGraw Hill, New Delhi, 2004 4. David Lepak & Mary Gowan, Human Resource Management, Pearson Education, 3rd edition, 2016 5. George T. Milkovich and John W. Boudream: Personnel / Human Resources Management: A Diagnostic Approach, 5th Edn. Plano, TX: Business Publications, 1998. 6. H. John Bernardin and Richard W. Beatty: Performance Appraisal: Human Behavior at work – Boston: Kent, 1984 7. Khanna S. S., Human Resource Management (Text and Cases), S. Chand, New Delhi, 2007 8. M.N. Rudrabasavaraj: Cases in Human Resource Management –Himalaya Publishing House – New Delhi, 1998 													
11	Internal Continuous Assessment: 40%	Semester End Examination: 60%												
12	Continuous Evaluation through: (40 Marks) <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Component</th> <th style="text-align: center;">Total Marks</th> </tr> </thead> <tbody> <tr> <td>1) Assignment/Case Studies/Book Review/ Research paper</td> <td style="text-align: center;">10 Marks</td> </tr> <tr> <td>2) Assignment/Presentation/Project/Viva-Voce</td> <td style="text-align: center;">10 Marks</td> </tr> <tr> <td>3) Class Test</td> <td style="text-align: center;">20 Marks</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">40 Marks</td> </tr> </tbody> </table> <p><i>Note: Learner must be Present in all the three exam components of Continuous Evaluation.</i></p>		Component	Total Marks	1) Assignment/Case Studies/Book Review/ Research paper	10 Marks	2) Assignment/Presentation/Project/Viva-Voce	10 Marks	3) Class Test	20 Marks	Total	40 Marks		
Component	Total Marks													
1) Assignment/Case Studies/Book Review/ Research paper	10 Marks													
2) Assignment/Presentation/Project/Viva-Voce	10 Marks													
3) Class Test	20 Marks													
Total	40 Marks													
14	Format of Question Paper: for the final examination Question Paper Pattern for Semester End Examination (SEE) Maximum Marks: 60 Duration: 2 Hour													
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 10%;">Q. No.</th> <th style="width: 80%;">Particular</th> <th style="width: 10%;">Marks</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Q. No.	Particular	Marks				<table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 10%;">Q. No.</th> <th style="width: 80%;">Particular</th> <th style="width: 10%;">Marks</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Q. No.	Particular	Marks			
Q. No.	Particular	Marks												
Q. No.	Particular	Marks												

Q-1	Attempt any TWO the following: (Module 1) A. Full Length Question B. Full Length Question C. Full Length Question	15 Marks
Q-2	Attempt any TWO the following: (Module 2) A. Full Length Question B. Full Length Question C. Full Length Question	15 Marks
Q-3	Attempt any TWO the following: (Module 3) A. Full Length Question B. Full Length Question C. Full Length Question	15 Marks
Q-4	Attempt any TWO the following: (Module 4) A. Full Length Question B. Full Length Question C. Full Length Question	15 Marks
Note: Any of the full length question of 7.5 Marks can be a case study.		

**Signatures of Team
Members**

Sr. No	Name	Signature
1.	Prof.(Dr.) Sadhana Venkatesh	
2.	Ms. Jyoti Ghosh	
3.	Ms. Shalini Clayton	
4.	Ms. Ashiyana Shaikh	

Approved by the Academic Council on 14-3-26 item no. 04

Approved by the BoS in Maths

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Title of the Course: Mathematics of Discrete Structures

**Programme:
B.Sc. Data Science**

(Semester – II)

**Syllabus for 4 Credit Course
From the Academic Year 2025 – 2026**

Name of the Course: Mathematics of Discrete Structures

Sr. No.	Heading	Particulars
1	Description of the course:	This course introduces the fundamental concepts of discrete mathematics essential for Artificial Intelligence and Machine Learning. It covers logic, set theory, combinatorics, and graph theory as core mathematical tools for computational problem-solving. The syllabus emphasizes discrete structures and their applications in algorithms, data structures, and AI models. It builds a strong foundation for advanced studies in data science, machine learning, and artificial intelligence.
2	Vertical:	VSC
3	Type:	Theory
4	Credit:	2 Credits (1 Credit = 15 Hours for Theory in a Semester)
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks Continuous Evaluation 20 Marks Semester End Examination 30 Marks
7	Course Objectives: The course aims to	<p>1. Introduce students to the fundamental concepts of discrete mathematics such as logic, sets, relations, and combinatorics, which form the mathematical foundation of computer science and artificial intelligence.</p> <p>2. Develop logical and analytical reasoning skills required for designing algorithms and solving computational problems in AI and machine learning.</p> <p>3. Provide understanding of combinatorial techniques used in counting, optimization, and probability models relevant to machine learning applications.</p> <p>4. Familiarize students with graph theory concepts and their applications in data structures, network analysis, knowledge representation, and AI models.</p>
8	Course Outcomes: After successful completion of the course, learners will be able to:	<ol style="list-style-type: none"> Apply logical reasoning and set theory concepts in problem-solving Use combinatorial techniques for counting and probability problems Understand graphs and trees used in AI algorithms and data structures Recognize the role of discrete mathematics in machine learning and artificial intelligence
9	Modules	
	Modules I: Logic, Sets, and Combinatorics	(15 Hours)
	<ul style="list-style-type: none"> Mathematical Logic: Propositions and logical connectives, Truth tables and logical equivalence, Implication and biconditional statements, Tautology, contradiction, and contingency, Basic rules of inference (Modus Ponens, Modus Tollens, etc.), Predicate logic and quantifiers (\exists, \forall) – introductory concepts Set Theory: Definition and types of sets. Subsets, power sets, Set operations: Union, Intersection, Difference, Complement, Venn diagrams, Cartesian product and relations, Equivalence relations and partitions (conceptual) Basic Combinatorics: Principle of counting (Addition and Multiplication principles), Permutations and combinations, Binomial theorem and binomial coefficients, Applications in AI and data science (feature selection, model combinations – conceptual) 	
	Module II: Graph Theory and Discrete Structures for AI	(15 Hours)
	<ul style="list-style-type: none"> Graph Theory Fundamentals: Graphs: Definition and types (simple, directed, 	

	<p>weighted, bipartite), Degree of a vertex, adjacency matrix and list, Paths, cycles, connected graphs, Trees and spanning trees (basic concepts)</p> <ul style="list-style-type: none"> • Graph Algorithm:Breadth First Search (BFS) and Depth First Search (DFS), Shortest path concept (Dijkstra – idea only), Applications in AI: Knowledge graphs, neural networks, social networks • Discrete Structures in AI and Machine Learning: Boolean algebra and Boolean functions, Finite state machines (introductory concept), Discrete probability basics (random variables, PMF, expectation – elementary), Role of discrete mathematics in algorithms, AI models, and ML pipelines
10	<p>Reference Books:</p> <ol style="list-style-type: none"> 1. <i>Kenneth H. Rosen – Discrete Mathematics and Its Applications</i> 2. <i>C. L. Liu & D. P. Mohapatra – Discrete Mathematics</i> 3. <i>S. Lipschutz – Schaum’s Outline of Discrete Mathematics</i> 4. <i>Richard Johnsonbaugh – Discrete Mathematics</i>

Evaluation Pattern

Continuous Evaluation: 40%
Semester End Examination: 60%

The Continuous evaluation will consist of

	Total Marks
Class Test/ Assignment/ Practical/ Project Work/ Presentation/ Case Study/ Book Review	20

Semester End Examination Question Paper Pattern

Maximum Marks: 30

Duration: 01 Hour

All Questions are Compulsory Carrying 15 Marks each.

Q. No.	Particular	Marks
Q-1	Q. 1 Attempt any Three (15 marks) a. b. c. d.	15 Marks
Q-2	Q. 2 Attempt any Three (15 marks) a. b. c. d.	15 Marks

Signature of Team Members

Sr. No.	Name	Signature
1	Ms. Shubha Chaubal	
2	Ms. Priyanka Malvankar	

AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Title of the Course: Web Technologies

**Programme:
Bachelor of Science
(Data Science)**

Semester- II

**Syllabus for 2 Credits
From the Academic Year 2026-2027**

Name of the Course: **Web Technologies**

Sr. No.	Heading	Particulars
1	Description of the Course :	This course introduces the fundamental concepts of web technologies with a focus on presenting data on the web. Students learn the basics of HTML, CSS, and JavaScript to design simple and responsive web pages. The course also introduces methods for displaying datasets using tables and creating basic charts to communicate insights effectively. By the end of the course, students will be able to build simple web pages that present and visualize data in a clear and interactive manner.
2	Vertical :	SEC
3	Type :	Theory and Practical
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives: Enable learners to :	<ol style="list-style-type: none">1. introduce students to the fundamentals of web technologies and enable them to develop basic web pages for presenting information and datasets.2. develop the ability to present and visualize data on web pages using HTML, CSS, JavaScript, and simple charting tools.
8	Course Outcomes: Learners will be able to :	<ol style="list-style-type: none">1. design and develop basic web pages using HTML, CSS, and simple JavaScript.2. present datasets on web pages using tables and basic charts for effective data visualization.

9

Modules:-

Module 1: Web Development Fundamentals

(15 Hours)

- Introduction to web technologies and their importance in presenting information and data on the internet, basic architecture of web applications and how browsers display web pages, introduction to HTML5 and structure of web pages, creating webpages using headings, paragraphs, lists, images and hyperlinks, creating tables for displaying datasets, introduction to forms and input elements for collecting user inputs.
- Introduction to CSS for styling webpages including colors, fonts, spacing, borders and backgrounds, page layout concepts and basic responsive design, introduction to Bootstrap framework for building responsive interfaces, introduction to JavaScript for adding interactivity to web pages, basic JavaScript concepts including variables, operators, functions and events, simple DOM manipulation to update webpage content dynamically.

Module 2: Web-based Data Visualization and Dashboards

(15 Hours)

- Introduction to web data formats such as CSV and JSON, loading and displaying datasets on web pages, presenting data using HTML tables, introduction to basic concepts of data visualization and dashboards for communicating insights.
- Creating interactive charts using Chart.js including bar charts, line charts and pie charts, customizing charts using titles, labels and legends, interpreting charts for basic data insights, introduction to simple data dashboards for presenting analytical results, mini project involving loading a dataset, displaying it on a webpage using tables and charts, and presenting key findings through a simple web dashboard

10	Reference Books: <ol style="list-style-type: none"> 1. Duckett, Jon, <i>HTML and CSS: Design and Build Websites</i>, John Wiley & Sons, 2011. 2. Meloni, Julie C., <i>Sams Teach Yourself HTML, CSS and JavaScript All in One</i>, Pearson Education, 2nd Edition, 2023. 3. Flanagan, David, <i>JavaScript: The Definitive Guide</i>, O'Reilly Media, 7th Edition, 2020. 	
11	Internal Continuous Assessment: 20%	Semester End Examination : 30%
12	Continuous Evaluation through: Practical Examination 20 Marks	
13	<p style="text-align: center;">Question Paper Pattern for Semester End Examination</p> <p style="text-align: center;">Maximum Marks: 30 Duration: 1 Hr.</p> <p style="text-align: center;">Note: All questions are compulsory. Each question has an internal choice.</p> <p style="text-align: center;"><i>[Refer to Next Page]</i></p>	

Question Number	Nature of Questions		Maximum Marks
1)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		
2)	Attempt any 3		
	a)		15
	b)		
	c)		
	d)		
	e)		

Signatures of Team Members

Sr.No	Name	Signature
1.	Mr. Deepak Sharma	
2.	Ms. Malik Sabiha	
3.	Ms. Vibhuti Barad	

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Knowledge is Supreme

Title of the Course: Communication Skills in English - II (Semester II)

Programmes:

Bachelor of Science (Data Science)
Bachelor of Commerce (Taxation & Auditing)

Syllabus for 2 Credit Course from the Academic Year 2026-2027

Name of the Course: Communication Skills in English - II

Sr. No.	Heading	Particulars
1	<p>Description of the course :</p> <p>Including but not limited to :</p>	<p>Communication Skills in English – II is designed to elevate learners' proficiency from foundational literacy to strategic professional communication within analytical, technological, and financial environments. The course emphasizes the mastery of corporate dynamics, the integration of generative AI tools, and the ability to bridge the gap between complex data and stakeholder decision-making.</p> <p>The strategic management of professional meetings and interviews; advanced technical report writing and executive summarisation; digital communication ethics including the responsible use of AI; and the translation of complex datasets into persuasive business narratives and proposals.</p>
2	Vertical :	Ability Enhancement Course
3	Type :	Theory
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks Continuous Evaluation 20 marks and Semester End Examination 30 marks
7	<p>Course Objectives:</p> <ol style="list-style-type: none"> 1. To develop learners' competence in specialized workplace communication and digital platforms, specifically tailored for the data-driven and financial environments. 2. To enhance learners' ability to interpret complex information using critical thinking, while equipping them to navigate generative AI tools responsibly with professional decorum and data ethics. 	
8	<p>Course Outcomes:</p> <p>By the end of this course, learners will be able to:</p> <ol style="list-style-type: none"> 1. Apply effective communication strategies in professional, digital, and analytical contexts including meetings, reports, and workplace interactions. 2. Draft clear, structured, and ethical professional communication suitable for technical and financial settings. 	

9	Module 1: Corporate Dynamics & Professional Coordination (15 Hours)
	<p style="text-align: center;">Interview Dynamics and Techniques</p> <ul style="list-style-type: none"> ● Preparation for Technical, Panel, and Virtual interviews ● Types of Interviews: Selection, Appraisal, Grievance, Exit ● Types of Interview Questions: FAQs, Self-Introduction, Technical and Hypothetical questions (STAR-based responses) <p style="text-align: center;">Strategic Management of Meetings</p> <ul style="list-style-type: none"> ● Need and Importance of Meetings in decision-making ● Roles and Responsibilities of the Chairperson and Participants ● Strategies for conducting a meeting and building consensus <p style="text-align: center;">Document Management</p> <ul style="list-style-type: none"> ● Drafting of formal Notice, Agenda, and Resolutions ● Recording accurate Minutes of the Meeting (MoM) and Action items ● Summarisation of complex technical documents
	Strategic Writing & Digital Innovation (15 Hours)
	<p style="text-align: center;">Advanced Report Writing</p> <ul style="list-style-type: none"> ● Reports: Meaning, importance and formal structure ● Drafting Investigative and Progress Reports for stakeholders ● Writing Executive Summaries to communicate complex data to non-experts <p style="text-align: center;">Modern Professional Correspondence</p> <ul style="list-style-type: none"> ● Digital communication: Managing formal and informal workplace channels ● Email as the primary formal channel: Use of professional business vocabulary. ● Drafting Strategic Memos and Business Proposals <p style="text-align: center;">Digital Communication and AI Tools</p> <ul style="list-style-type: none"> ● Digital Decorum: Maintaining professional tone and courtesy across virtual platforms ● Strategic use of Generative AI for drafting and refining content ● Digital Ethics: Managing AI hallucinations, plagiarism, and data privacy

10	Reference Books: <ul style="list-style-type: none"> ● Cardon, Peter W. <i>Business Communication: Developing Leaders for a Networked World</i>. 5th ed., McGraw Hill, 2025. ● Guffey, Mary Ellen, and Dana Loewy. <i>Essentials of Business Communication</i>. 12th ed., Cengage Learning, 2023. ● Raman, Meenakshi, and Sangeeta Sharma. <i>Technical Communication: Principles and Practice</i>. 3rd ed., Oxford University Press, 2022. ● Facione, Peter A. <i>Think Critically</i>. 4th ed., Pearson, 2022. ● Rosenwasser, David, and Jill Stephen. <i>Writing Analytically</i>. 9th ed., Cengage, 2022. ● Bovee, Courtland L., and John V. Thill. <i>Business Communication Today</i>. 15th ed., Pearson, 2021.
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	<ul style="list-style-type: none"> ● Poh, Michael. <i>Modern Business Writing for Today's Workplace</i>. Productivity Press, 2021. ● Knaflic, Cole Nussbaumer. <i>Storytelling with Data: Let's Practice!</i> Wiley, 2019. ● Duarte, Nancy. <i>DataStory: Explain Data and Inspire Action Through Story</i>. Ideapress Publishing, 2019. ● Canavor, Natalie. <i>Business Writing in the Digital Age</i>. 2nd ed., SAGE Publications, 2018. 	
11	Internal Continuous Assessment: 40%	Semester End Examination: 60%
12	Continuous Evaluation through: (20 marks)	Summarisation, Professional email drafting, Report/Proposal writing, Interpretation of tables/graphs/dashboards, Drafting Minutes of Meeting (MoM) and Action Taken Reports (ATR), Case Study Presentation, Mock Interview, Periodic Test, Class projects, demonstrations/ exhibitions

13	Format of SEE Question Paper: (30 marks)		
	Question No.	Nature of Question	Maximum Marks
	Q-1	Short notes: (Attempt any 2 of 3) a) b) c)	10 Marks
	Q-2	Attempt any 2 of 4: a) Draft a professional email in response to the given scenario b) Draft a memo in response to the given scenario. c) Analyse the given passage and identify its argument, tone, and key communication strategies. d) Interpret and summarise the given data highlighting key insights and implications.	10 Marks
Q-3	Attempt any 1 of 2: a) Draft a Business Proposal b) Draft an analytical/investigative report	10 Marks	

Signatures of Team Members

Sr.No.	Name	Signature
1.	Ms. Amrita Nambiar	
2.	Dr. Swati Bhise	

Approved by the Academic Council on 14-3-26 item no.
Approved by the BoS in Environmental Studies and Foundation Course on 5-3-26 item no. 02

As Per NEP 2020

Tolani College of Commerce **(Autonomous)**



Title of the Course: Environmental Studies- II

Name of the Programmes:

1. Bachelor of Commerce
2. Bachelor of Commerce (Management Studies)
3. Bachelor of Commerce (Accounting & Finance)
4. Bachelor of Commerce (Banking & Insurance)
5. Bachelor of Commerce (Financial Markets)
6. Bachelor of Commerce (Logistics)
7. Bachelor of Commerce (Taxation and Auditing)
8. Bachelor of Science (Information Technology)
9. Bachelor of Science (Data Science)

Semester II

Syllabus for 2 Credit Course

From the academic year- 2026-2027

Name of the Course: Environmental Studies- II

Sr. No.	Heading	Particulars
1	Description the course:	The course is an introductory inter-disciplinary course to understand impacts of human actions on environment. It is an attempt to understand the future impacts by learning from the past and present actions.
2	Vertical:	Value Education System
3	Type:	Theory
4	Credit:	2 credits
5	Hours Allotted:	30 Hours
6	Marks Allotted:	50 Marks Continuous Evaluation 20 Marks Semester End Examination 30 Marks
7	Course Objectives: By end of this course learners should be: 1. aware about the human interventions for environment protection 2. familiar with the mechanisms for environmental protection in India	
8	Course Outcomes: The learners shall be able to: 1. hold a rational attitude towards sustainable development 2. a develop a sense of environmental responsibility	

9	<p>Module 1: Sustainable Development and Way forward (15 Hours)</p> <ol style="list-style-type: none"> Sustainable Development: Definition, Need, Importance of Sustainable Development; Origin and Evolution of Sustainable Development Goals (SDGs) Environmental Management: Need, Importance and Relevance, ISO 14000, Carbon Banks and Carbon Credits; Corporate Social Responsibility: Concept, Need and Importance Disaster Management: Definition; Types of disasters; Effects of disaster; Factors to be considered in Prevention, Mitigation (Relief and Rehabilitation) and disaster Preparedness. Environment Education: Definition, Scope, Importance, Principles, Methods, Concept of Education for Sustainable Development <p>Module 2: Environment Protection in India (15 Hours)</p> <ol style="list-style-type: none"> Environmental Movements in India: Chipko Movement, Appiko Movement, Save Narmada Movement, Save Western Ghat, Save Jaitapur and Save Aarey Environmental Laws in India: Constitutional Provisions for environment protection; Law-Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act, 1981, Wildlife Protection Act, 1972, Forest Conservation Act, 1980, Environmental Protection Act, 1986 Protected Areas in India: Definition and concept, Importance, Types of Protected Areas, Some of Protected Areas in India, Protected Areas Network Conservation Initiatives in India: Concept, Need of conservation; Institutions and NGOs in the field of conservation India; Conservation initiative in India- National Solar Mission, Project Tiger, Project Elephant, Project Vulture, Project Cheetah, Project Mahseer, Project Bustard
10	<p>Reference Books:</p> <ol style="list-style-type: none"> Gleick, H.P. 1993. Water in crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p McKinney M.L. & Schoch R.M., 1998: Environmental Science, Jones & Bartlett Publishers, London Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. Murthy, D. B. N., Disaster Management: Text and Case Studies, Deep and Deep Negi S.S. (1993) Biodiversity and its Conservation in India, Indus Publications, New Delhi Odum E.P. (1971): Fundamentals of Ecology, W.B. Saunders, Philadelphia Parsuraman, S., and Unnikrishnan, ed., India Disasters Report II, Oxford, New Delhi, 2013 Publications, New Delhi, 2013. Rajgopalan C (2015): Environmental Studies. Oxford University Press Rao K.L. 1975: India's Water Wealth, Orient Longman Ltd. New Delhi Reza, B. K., Disaster Management, Global Publications, New Delhi, 2010.
11	<p>Other Readings:</p> <ol style="list-style-type: none"> Down to Earth, Centre for Science and Environment Human Development Report 2020 "The next frontier Human development and the Anthropocene", United Nations Development Programme (eISBN: 978-92-1-005516-1) 412 p.p http://hdr.undp.org/en/2020-report

12

Websites:

1. <https://unfccc.int/>
2. <https://www.cbd.int/>
3. <https://cpcb.nic.in>
4. <https://mpcb.gov.in>
5. <https://shoalconservation.org/project/project-mahseer/>
6. <https://www.wwfindia.org/>
7. <https://www.bnhs.org/>
8. <https://www.iucnredlist.org/>
9. <https://wii.gov.in/>

13	Internal Continuous Assessment: 40%	Semester End Examination: 60%		
14	Continuous Evaluation through:	1. Fieldwork-based project work and report or assignment or presentation or report-writing or article/ book review or topic-based activity	10 marks	
		2. Class Test	10 marks	
		Total	20 marks	
15	Format of Question Paper:			
	Question Number	Nature of Questions	Maximum Marks	
	1)	Attempt any THREE of the following: (From Module I)		15
		A.		
		B.		
		C.		
	2)	Attempt any THREE of the following: (From Module II)		15
		A.		
		B.		
		C.		
D.				

Signatures of Team Members

Sr. No.	Name	Signature
1.	Mr. Kaustubh Bhagat	

AC –
Item No. –

As Per NEP 2020

Tolani College of Commerce (Autonomous)



Knowledge is Supreme

Title of the Course: Fundamentals of Human Skills Semester II

	Programmes:
1	Bachelor of Commerce (Taxation and Auditing)
2	Bachelor of Science (Data Science)

Syllabus for 2 credits

From the academic year-2024-2025

Name of the Course: Fundamentals of Human Skills

Sr. No.	Heading	Particulars
1	Description the course :	Learners will acquire the essential abilities needed to thrive in various personal and professional contexts. These skills enable individuals to communicate effectively, collaborate with others, manage their emotions and relationships, and adapt to changing situations. Understanding human skills helps people confidently handle social interactions, form strong connections with others, and reach their goals faster and more effectively.
2	Vertical :	Co-Curricular Course
3	Type :	Theory
4	Credit:	2 credits
5	Hours Allotted :	30 Hours
6	Marks Allotted:	50 Marks
7	Course Objectives:	<ol style="list-style-type: none">1. To comprehend the concept of individual behaviour, personality and attitude, Johari window, perception and team effectiveness.2. To explore organisational culture, Motivation at workplace and Organisational Stress.
8	Course Outcomes:	<ol style="list-style-type: none">1. Learners will be able to understand the factors contributing to individual differences, personality and attitude, Johari window, perception and team effectiveness.2. Learners will acquire knowledge of organisational culture, workplace motivation, and organisational stress.

Module: 1 Understanding of Human Nature and Group Behaviour (15 Hours)

- **Individual Behaviour:** Concept of a human, individual differences, factors affecting individual differences and Influence of environment.
- **Personality and attitude:** Determinants of personality, Personality traits theory, Big five model, Personality traits important for organisational behaviour like authoritarianism, locus of control, Machiavellianism, introversion-extroversion achievement orientation, self – esteem, risk taking, self-monitoring and type A and B personalities, Concept of understanding self through Johari Window.
- **Perceptions:** Introduction, Definitions, Determinants of Perception, Errors in Perception, Perception and its Impact on Organizations. Group Dynamics: Nature, types, group behaviour model (roles, norms, status, process, structures). Team effectiveness: nature, types of teams and ways of forming an effective team. Setting goals. Organizational processes and system.

Module 2: Organizational Culture , Motivation and Organizational Stress (15 Hours)

- **Organizational Culture:** Characteristics of organizational culture. Types, functions and barriers of organizational culture and ways of creating and maintaining effective organisation culture.
- **Motivation at workplace:** Concept of motivation Theories of motivation in an al set up. A.Maslow Need Heirachy, F.Hertzberg Dual Factor, Mc.Gregor theory X and theory Y. Ways of motivating through carrot (positive reinforcement) and stick (negative reinforcement) at workplace.
- **Organizational Stress:** Introduction, Definition, The Nature of Stress, The Effects of Stress , Causes of Stress and Stress Management.

10	References: <ul style="list-style-type: none"> • John W.Newstrom and Keith Davis, al behaviour, Tata McGrawhill, 2014. • Fred Luthans, al behaviour, McGrawhill,New York, 2011. • K.Aswathappa, al behaviour, Himalaya Publishing House, 2010. • Koontz,Harold, Essentials of management, Tata McGrawhill, 2013. 							
11	Continuous Evaluation							
12	Continuous Evaluation through: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Component</th> <th style="text-align: center;">Total Marks</th> </tr> </thead> <tbody> <tr> <td>1)Assignment/Case Studies / Presentation/ /Project</td> <td style="text-align: center;">50 Marks</td> </tr> <tr> <td>Total</td> <td style="text-align: center;">50 Marks</td> </tr> </tbody> </table>		Component	Total Marks	1)Assignment/Case Studies / Presentation/ /Project	50 Marks	Total	50 Marks
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**Signatures of Team
Members**

Sr.No	Name	Signature
1.	Dr. Sadhana Venkatesh	
2.	Ms.Shalini Clayton	