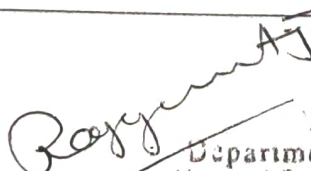
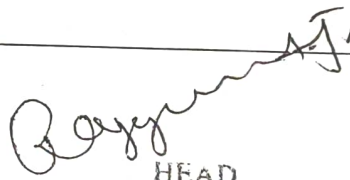


Annexure-I

VEER NARMAD SOUTH GUJARAT UNIVERSITY, SURAT SYLLABUS			
Title of Course	"Python for Statistics"		
Credit	Theory: 1	Practical: 1	Total: 2
	Total Teaching Hours = 45 (15 Theory + 30 Practical)		
UNIT	Course Content		
I	Python Programming Fundamentals with AI-Assisted Coding - Overview of the Course and the Role of AI Tools in Modern Programming - Installing Python; Jupyter Notebook and Google Colab (free, browser-based) - Overview of Free AI Coding Assistants: ChatGPT, Google Gemini, GitHub Copilot Free, Claude (Free tier) - Variables, Mathematical & Logical Operators - Conditional Statements, If-Else, Loops - Data Structures (Lists, Tuples, Arrays, Sets, Dictionaries) - Introduction to NumPy, Pandas and Matplotlib - Reading & Writing Files, Sorting, and Indexing - Exception Handling and AI-Assisted Debugging using free tools (basics of Prompt Engineering) - List Comprehensions and Lambda Functions - Practice - Unit Test		
II	Descriptive Statistics and Data Visualization (AI-Enhanced) - Frequency, Mean, Median, Mode, Range, Quartiles - Correlation and Percentiles - Data Cleaning and Missing Values (AI-assisted data cleaning prompts) - Scatter Plot, Line Plot, Bar Plot, Pie Chart - Histogram, Box Plot and Heat Map - Outlier Detection and Treatment - Pivot Tables using Pandas and AI-Assisted Interpretation of Graphs - Practice - Unit Test		
III	Inferential Statistical Analysis in Python (with AI Support) - Correlation and Regression - Hypothesis Testing; Parametric and Non-parametric Tests		


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	- Chi-Square Test - Using Free AI Tools (ChatGPT, Gemini, Claude) to Interpret Statistical Output and Verify Test Assumptions - Practice - Unit Test
IV	Case Study, AI-Assisted Machine Learning and Group Project - Applying an ML Model to Data with Python and Evaluating the Model - Linear Regression and Logistic Regression - AI-Assisted Model Building, Code Review and Debugging using Free Tools (GitHub Copilot Free, Gemini Code Assist, ChatGPT) - Responsible and Ethical Use of AI Tools in Data Analysis (accuracy checks, avoiding over-reliance, data privacy) - Project Presentation / Practical Assessment
Teaching Methodology	Lectures, Demonstrations, Hands-on Practical Sessions in Python using Free AI-Assisted Coding Tools, Case Studies, Quiz, Project Work
Evaluation Method	Internal Assessment: 50 Marks External Assessment: 50 Marks


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