C P Patel & F H Shah Commerce (Autonomous) College, Anand
PROGRAMME STRUCTURE
Master of Science
M.Sc. Data Science
Semester: 3
(Syllabus with effect from the Academic Year June 2025)

Course Objectives - For M.Sc. Data Science Semester-III Programme	**After successful completion of this course, the student will be able to:**
	1. The primary objective of the M.Sc. in Data Science program is to develop skilled professional workforce that is prepared to address the increasing needs in the rapidly expanding area of big data analytics.
	2. The program aims to provide skills in quantitative data analysis, data mining, data modeling and prediction, data storage and management, machine learning, big data processing, data visualization, multimedia big data, programming and communication skills. Get familiarity with aspects of Business Environment.
	3. Value Added Course/ training and a large number of practical case studies have been integrated in the program to boost the learner confidence and market acceptability.
Programme Specific Outcome (PSO) - For M.Sc. Data Science Semester - 3	**After successful completion of this semester, the student will be able to:**
	1. Implement professional knowledge in setting up road map to be an entrepreneur and identify research areas.
	2. Ability to develop skills to address and solve social and environmental problem with ethics and perform multidisciplinary projects with advance technologies and tools.
	3. Data Science Post Graduates are able to become leaders in the society with the help of advanced knowledge and skill, which can empower them to analyses, design, develop and implement their learning to develop the society.

Course Type	Course Code	Course Title	T/P	Credit	Exam Duration Hours	Component of Marks		
						Internal	External	Total
Core Courses	PG03CMDS01	Data Visualization with Advanced Tools	T	4	3	30/12	70/28	100/40
	PG03CMDS02	Business Intelligence Using Power BI	T	4	3	30/12	70/28	100/40
	PG03CMDS03	Data Mining And Data Warehousing	T	4	3	30/12	70/28	100/40
	PG03CMDS04	Natural Language Processing	T	4	3	30/12	70/28	100/40
Practical Ability	PG03CMDS05	Project Work (In House)	=	4	3	30/12	70/28	100/40
	PG03PMDS06	Practical based on PG03CMDS01 & PG03CMDS02	P	5	3	--	100/40	100/40
		Total		25		150/60	450/180	600/240

3 (Lectures) + 1 (CSDS) + 1 (Assignments)

To Pass:	1. At least 40% Marks in the University Examination in each paper and
	2. At least 40% Marks in the individual Head of passing or 30% marks in aggregate at the internal tests conducted by the PG Centers

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A^+' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

Master of Science (Data Science)
Semester –3

Course Code	PG03CMDS01	Title of the Course	Data Visualization with Advance Tools
Total Credits of the Course	**04**	**Hours per Week**	**04**

Course Objectives	- Adept navigate Advanced Tools interface, understand its installation procedures and comprehend the pivotal need and significance of Advanced Tools in data driven decision-making process. - To Practice various data visualization Plots and Charts. - To Create Storyline and Dashboard - To develop different Scenarios of Data Visualization in Advanced Tool.

Course Outcomes	- Proficiency in developing compelling narratives and visually engaging dashboards, showcasing their ability to analyze data effectively using Advanced Tools. - Students will refine their skills, leveraging the platform's robust features to tackle complex data scenarios and create sophisticated visualizations for strategic insights.

Course Content		
Unit	**Description**	**Weight age (%)**
1.	**Introduction to Data Visualization** - What is data visualization? - Importance of visualization in decision-making. - Real-life use cases. - Basics of Visualization Tools - Getting started with tools (Tableau), Key features of tool, Installing and creating a first visualization.	**25%**

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified

GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A^+' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

2.	**Data Preparation, Transformation and Basic Visualizations** • Data Preparation Basics, Understanding data formats (csv, excel, etc.) Understanding data types and formats. Handling missing or inconsistent data. Filtering and sorting data. • Line graph, scatter plot, pie chart, histogram, bar chart, area chart, heat map, waterfall chart, tree map, Motion Chart, Dual-Axis, Gantt Chart, Bar-in-Bar.	**25%**
3.	**Advanced Visualization Techniques** • Donut Chart, Funnel Chart, Waterfall Chart, Sparkline Chart • Geographic data visualization with maps. • Heat maps, tree maps, and other advanced chart types. • Working with Spatial Data • Creating interactive dashboards to explore and present insights. • Designing dashboards and storyline creations for different stockholders.	**25%**
4.	**Build up Data Analysis Application** • Analytical functions and features, performing trend analysis and forecasting. • Identifying outliers and anomalies. • Create Data Visualizations with Employee Data, Banking Data, Grocery Data, and Students Data. • Sharing Visualizations with stakeholders.	**25%**

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approach: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written	
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	**30%**
3.	External Examination	**70%**

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A⁺ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A⁺' UGC – MHRD, Govt of India – June 2022
Effective from the Academic Year 2025-2026

Suggested References:

S r .No.	References
1	Mastering Data Visualization Using Tableau By Seema Acharya, Wiley; First Edition
2	Mastering Data Visualization With Tableau Dr. Arpana Chaturvedi, Prof. Praveen Malik
3	Learning Data Visualization With Tableau: Create Interactive And Insightful Data Visualizations Kindle Edition By Thompson Carter (Author)
4	Communicating Data With Tableau | Ben Jones | Shroff Publication
5	https://help.tableau.com/current/guides/get-started-tutorial/en-us/get-started-tutorial-home.htm

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE **A⁺** KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE **'A⁺'** UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

Master of Science (Data Science)
Semester –3

Course Code	PG03CMDS02	Title of the Course	Business Intelligence Using Power BI
Total Credits of the Course	04	Hours per Week	04

Course Objectives	- To get the most out of Microsoft's Power BI, a suite of tools that lets they build interactive dashboards for analyzing data and extracting business insights. - To master the development of dashboards from published reports, discover greater insights from any data with Quick Insights, and learn practical applications for Power BI tasks, such as gathering and analyzing data.

Course Outcomes	- Understand Power BI concepts like Microsoft Power BI desktop layouts, BI reports, dashboards, and Power BI DAX commands and functions. - Gain a competitive edge in creating customized visuals and deliver a reliable analysis of vast amount of data using Power BI - Form relationships in your data model and learn data visualization best practices.

Course Content		
Unit	**Description**	**Weight age (%)**
1.	**Introduction to Business Intelligence and Power BI** - What is Business Intelligence (BI)? BI Role in organizations. - Importance of visualization in decision-making. - Business Intelligence (BI) Fundamentals - Introduction to Power BI - Power BI Desktop vs. Power BI Service, Key Features and Benefits - Understanding Data - Data Types (OLTP, DWH, OLAP), Data Sources and Connections - Setting up Power BI - Installation and Configuration, Understanding the Power BI Desktop Interface	25%

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A$^+$' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

2.	**Data Preparation, Transformation and Connection** • Power Query Editor- Connecting to Data Sources, Data Cleaning and Transformation, Shaping and Merging Data • Filtering and Sorting, Removing Duplicates, Unpivoting and Splitting Columns. • Data Types and Formatting, Handling Missing Data • Connecting to Data Sources - Databases (MySQL), Spreadsheets (Excel), CSV files.	**25%**
3.	**Data Modeling** • Building Data Models, Relationships between Tables, Understanding Data Model Best Practices • DAX (Data Analysis Expressions)- Calculated Columns and Measures, Different DAX Functions	**25%**
4.	**Data Visualization and Reporting** • Creating Reports and Dashboards- Visualizations (Charts, Graphs, Maps), Formatting and Styling, Interactive Elements (Filters, Bookmarks) • Data Storytelling, Custom Visuals • Power BI Service and Collaboration • Publishing Reports to the Power BI Service • Sharing and Collaboration	**25%**

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approach: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written	
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	**30%**
3.	External Examination	**70%**

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A$^+$' UGC – MHRD, Govt of India – June 2022
Effective from the Academic Year 2025-2026

Suggested References:	
S r .No.	References
1	Mastering Power BI by Sinha Chandraish, BPB Publications
2	Business Intelligence with Microsoft Power BI - with Material by Pavan Lalwani
3	Power BI - Business Intelligence Clinic: Create and Learn by Roger F Silva
4	https://www.datacamp.com/tutorial/tutorial-power-bi-for-beginners
5	https://www.tutorialspoint.com/power_bi/index.htm

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A^+' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2024-2025

Master of Science (Data Science)
Semester –3

Course Code	PG03CMDS03	Title of the Course	Data Mining and Data Warehousing
Total Credits of the Course	**04**	**Hours per Week**	**04**

Course Objectives	• Learn data mining concepts understand association rules mining. Discuss classification algorithms. • Learn how data is grouped using clustering techniques. • To develop the abilities of critical analysis to data mining systems and applications. • To implement practical and theoretical understanding of the technologies for data mining. • To understand the strengths and limitations of various data mining models.

Course Outcomes	• Ability to perform the pre-processing of data and apply mining techniques on it. • Ability to identify the association rules, classification and clusters in large data sets. • Ability to solve real world problems in business and scientific information using data mining. • Ability to classify web pages, extracting knowledge from the web.

Course Content		
Unit	**Description**	**Weightage (%)**
1.	**Introduction to Data Mining and Data Warehousing:** • Data mining introduction • Data mining Vs Query tools • Data Learning • Benefits of data mining • Data warehouse introduction • Characteristics of data warehouse • Data warehouse delivery method	25%

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A^+' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2024-2025

2.	**Data Warehouse Architecture:** • System Process – Process flow within an data warehouse – Extract and Load Process – Clean and Transform data – Backup and Archive Process – Query Management Process • Process Architecture – Load and Warehouse Manager – Query Manager – Detailed and Summary Information – Metadata – Data Marting	**25%**
3.	**Database Design – Logical:** • Database Schema – Starflake • Partitioning strategy • Aggregations • Data Marting • Metadata • System and Data Warehouse Process Manage	**25%**
4.	**Database Design – H/W and Operational:** • H/W Architecture • Physical Layout • Security • Backup and Recovery • Service Level Agreement • Operating Data Warehouse	**25%**

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approach: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations.

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)
AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR
An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE **'A$^+$'** UGC – MHRD, Govt of India – June 2022
Effective from the Academic Year 2024-2025

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written	
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	**30%**
3.	External Examination	**70%**

Suggested References:	
Sr. No.	References
1	S. Anahory & D. Murray: Data Warehousing in the real world – Addison Wesley, 1997.
2	R. Kinball: Data Warehouse Toolkit – John Wiley & Sons Pieter Adriaans, Dolf Zantinge, "Data Mining", Addison Wesley, 1996.
3	R. Kinball, L.Reeves : The Data Warehouse Lifecycle Toolkit – John Wiley & Sons, 2008.
4	Pieter Adriaans, Dolf Zantinge, "Data Mining", Addison Wesley, 1996.

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)
AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR
An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A^{+}' UGC – MHRD, Govt of India – June 2022
Effective from the Academic Year 2025-2026

Master of Science (Data Science)
Semester –3

Course Code	PG03CMDS04	Title of the Course	Natural Processing Language
Total Credits of the Course	04	Hours per Week	04

Course Objectives	- To introduce the fundamental concepts and techniques of Natural Language Processing for analyzing words based on Morphology and CORPUS. - To examine the NLP models and interpret algorithms for classification of NLP sentences by using both the traditional, symbolic and the more recent statistical approach. - To get acquainted with the algorithmic description of the main language levels that includes morphology, syntax, semantics, and pragmatics for information retrieval and machine translation applications.

Course Outcomes	- Understand the fundamental concepts of natural language processing. - Understand the text pre-processing and corpora. - Analyze the words and perform POS tagging. - Distinguish between the syntactic and semantic correctness of the natural language.

Course Content		
Unit	**Description**	**Weight age (%)**
1.	**Introduction to NLP** - Introduction to NLP, Introduction to various levels (stages) of natural language processing - Ambiguities, varieties and computational challenges in processing natural languages - Introduction to Real life applications of NLP such as spell and grammar checkers, information extraction, information retrieval, question answering, and machine translation.	25%

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified

GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE **'A$^+$'** UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

2.	**Text Processing & Language modelling** • Text pre-processing, challenges, tokenization, sentence segmentation • Regular expressions, words, text normalization, minimum edit distance, • Introduction to corpora, corpora analysis • The role of language models. N-gram models. Estimating parameters and smoothing • Evaluating language models	**25%**
3.	**Morphological analysis and POS tagging** • Introduction to Parts of speech and morphology • Inflectional and Derivation Morphology, Morphological Analysis, FSA and Generation using finite state transducers • Introduction to POS tagging • Hidden Markov and Maximum Entropy models (HMM), Viterbi decoding for HMM.	**25%**
4.	**Syntactic analysis & Semantic analysis** • Ambiguities in syntactic parsing, context free grammar, CYK parsing, shallow parsing and chunking, dependency parsing, statistical parsing and PCFG • Semantics, Lexical Semantics • Word senses, Relations between senses, Word Sense Disambiguation • Word similarity, WordNet • Thesaurus based word similarity, Thematic Roles • Semantic Role Labelling with CRFs.	**25%**

Teaching-Learning Methodology	Material for this course will be presented using multiple teaching approach: lecture and discussion, exploration and inquiry, cooperative group work, demonstrations, and presentations

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written	
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	**30%**
3.	External Examination	**70%**

Suggested References:	
S r .No.	References
1	Daniel Jurafsky and James H. Martin, Speech and Language Processing, 2017, 3rd edition, Prentice Hall.

Effective from the Academic Year 2025-2026

2	Chris Manning and Hinrich Schütze, Foundations of Statistical Natural Language Processing, 2016, MIT Press.
3	James Allen "Natural Language Understanding, 2012, 8th Edition, Pearson Publication.
4	Vajjala, Sowmya, Bodhisattwa Majumder, Anuj Gupta and Harshit Surana. Practical natural language processing: A comprehensive guide to building real world NLP systems, 2020, O'Reilly Media.
5	Steven Bird, Ewan Klein and Edward Loper, ―Natural Language Processing with Python‖, First Edition, O_Reilly Media, 2009.
6	Breck Baldwin, ―Language Processing with Java and LingPipe Cookbook, Atlantic Publisher, 2015. 2.
7	Richard M Reese, ―Natural Language Processing with Java‖, O_Reilly Media, 2015.
8	Nitin Indurkhya and Fred J. Damerau, ―Handbook of Natural Language Processing, Second Edition, Chapman and Hall/CRC Press, 2010.
9	Tanveer Siddiqui, U.S. Tiwary, ―Natural Language Processing and Information Retrieval‖, Oxford University Press, 2008.

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE'A^+' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

Master of Science (Data Science)
Semester –3

Course Code	PG03CMDS05	Title of the Course	Project Work (In House)
Total Credits of the Course	04	Hours per Week	04

Course Objectives	• To provide practical experience of Data Science Tools. • To train students to develop software product for Analysis. • To gain knowledge of work with Big Data Analysis using different advanced tools. • To Improve development of Visualization and Decision making reports with latest tools.

Course Outcomes	• Student work practically with advanced tools of Data Analysis with Latest Features in Real life Problems. • Ability to have knowledge of Data Scientist work and challenges and solving problem of Data Analysis Process.

Course Content		
Unit	**Description**	**Weightage (%)**
1	• Training on In-house Project Work	100%

Teaching-Learning Methodology	Project-based learning approach in which students acquire skills on design, development, analysis, critical thinking, decision making, evaluation and testing of diffrent anyalysis scenario.

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)
AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR
An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE'A^+' UGC – MHRD, Govt of India – June 2022
Effective from the Academic Year 2025-2026

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written	
2.	Internal Continuous Assessment in the form of Quizzes, Seminars, Assignments, Attendance	**30%**
3.	External Examination	**70%**

C P PATEL AND F H SHAH COMMERCE (AUTONOMOUS) COLLEGE, ANAND

(Managed by SARDAR PATEL EDUCATION TRUST,ANAND)

AFFILIATED TO SARDAR PATEL UNIVERSITY, V V NAGAR

An ISO 9001 2015 Certified / An ISO 14001-2015 Certified / An ISO 21001-2018 Certified
GUJARAT INSTITUTIONAL RATING FRAMEWORK (4 STAR)

AAA Reaccredited CGPA 3.56 – GRADE A^+ KCG-Dept of Edu. Got of Gujarat-April 2017

NAAC Reaccredited - CGPA 3.30 - GRADE 'A$^+$' UGC – MHRD, Govt of India – June 2022

Effective from the Academic Year 2025-2026

Master of Science (Data Science)
Semester –3

Course Code	PG03CMDS06	Title of the Course	Practical based on PG03CMDS01 & PG03CMDS02
Total Credits of the Course	05	Hours per Week	10

Course Objectives	- To provide practical experience of Advanced Tools - To provide practical experience off working with Power BI. - To familiarize students with Data Analysis in Power BI & Tableau. - Database connectivity with Data Analysis Tools. - Create Data science application or Reports in Advance Tools.

Course Outcomes	- Gain knowledge of developing Data Science Problem with Visualization Reports. - Create and manipulate Advance Analysis Tools functionality for data analysis.

Course Content		
	Description	**Weight age(%)**
	Part-1 : Practical based on PG03CMDS01	**50%**
	Part-2 : Practical based on PG03CMDS02	**50%**

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching as well as online / ICT-based teaching practices

EvaluationPattern	
Details of the Evaluation	Weightage
Internal Written / Practical Examination (As per CBCS R.6.8.3)	**15%**
Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	**15%**
External Examination	**70%**