GANPAT UNIVERSITY

FACULTY OF MANAGEMENT STUDIES

Programme	MBA	Branch/Spec.	Tech MBA (MBA Technology Management)
Semester	III	Version	2.0.0.0
Effective from Academic Year	2025-26	Effective for the Batch admitted in	January 2025
Course Code	**IIIA06DEM**	Course Name	**Data Engineering for Manager**

Teaching Scheme						Examination Scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	0		3	Theory	60	40	100
Hours	3	0	0		3	Practical			

Pre-requisites

Course Outcomes

On successful completion of the course, the students will be able to:

CO1	Explain the fundamentals of data engineering, SAS Viya environment, and SAS Studio workflows relevant to business data management.
CO2	Manage, query, and transform data using SAS Studio tools including libraries, table viewer, filters, joins, and column operations.
CO3	Design, build, and automate data flows using tasks, swim-lanes, connections, scheduling, and advanced SAS Studio Engineer steps.
CO4	Apply table loader, merge table, and SCD implementation steps to build robust data pipelines for business analytics.
CO5	Utilize decision nodes and Execute Decisions steps to integrate rule-based logic within data workflows for improved managerial decision-making.

Theory Syllabus

Unit	Content	Hrs.
1	Managing and Querying Data Using Flows in SAS Studio • 3SAS Viya Overview • SAS Studio Licensing • Using Flows in SAS Studio Working with Data • Understanding Data • Understanding SAS Libraries • Using the Table Viewer in SAS Studio • Importing Unstructured Data Using SAS Studio • Exporting SAS Tables in SAS Studio Transforming Data (6 hours) • Managing Columns Using SAS Studio • Filtering Rows Using SAS Studio • Sorting SAS Tables in SAS Studio • Calculating Columns in SAS Studio	12
2	• Conditionally Calculating Columns in SAS Studio • Summarizing and Filtering Data by Groups in SAS Studio • Joining Tables in SAS Studio Working with Flows • Using Tasks in a SAS Studio Flow • Submitting a Flow in the Background • Using Swim-lanes and Connections • Scheduling a Flow	12

3	Using SAS® Studio Engineer Steps in SAS® Studio Flows • Overview of SAS Studio flows. • SAS Studio Engineer flow steps. • Tips and tricks for Using the virtual lab to complete practices. The Table Loader Step • Table loader capabilities and specifications. • Using the Table Loader step for existing target tables. • Using the Table Loader step when the target table does not yet exist.	12
4	The Merge Table Step • Merge table capabilities and specifications. • Using the Merge Table step. The Implement SCD Step • Key concepts for slowly changing dimensions. • Adding the SCD generated key to the fact table. • Implement SCD capabilities and specifications. • Using the Implement SCD step.	12
5	The Execute Decisions Step • What decisions are and how they are implemented in SAS Studio flows. • Exploring decisions and using the Execute Decisions step.	12

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Practical, assignments and tutorials are based on above syllabus.	
Text Books	
1	Fundamentals of Data Engineering: Plan and Build Robust Data Systems by Joe Reis and Matt Housley
Reference Books	
1	Data Engineering: A Hands-On Approach to Big Data Processing by Manoj Kukreja and Manish Kumar
2	Designing Data-Intensive Applications: The Big Ideas Behind Reliable, Scalable, and Maintainable Systems by Martin Kleppmann
3	Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking by Foster Provost and Tom Fawcett
4	Data Engineering with Python: Work with Big Data Tools by Paul Crickard
5	The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling by Ralph Kimball and Margy Ross
6	Building the Data Lakehouse by Bill Inmon, Mary Levins, and Ranjeet Srivastava
ICT/MOOCs Reference	
1	Coursera: Data Engineering on Google Cloud Platform Specialization — Google Cloud
2	Udemy: The Data Engineering Bootcamp — Udemy Data Professionals

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3	PSO 4
CO1	3	3	2	1	2	1	1	3	3	3	2	1
CO2	3	2	1	2	1	1	1	3	3	2	3	1
CO3	3	2	2	2	1	1	1	3	3	2	3	1
CO4	3	2	2	1	1	1	1	3	3	2	3	1
CO5	3	2	3	2	2	2	2	3	3	3	3	1