

GANPAT UNIVERSITY									
FACULTY OF MANAGEMENT STUDIES									
Programme		MBA		Branch/Spec.		Business Analytics			
Semester		I			Version		1.0.0.0		
Effective from Academic Year			2026-27		Effective for the batch Admitted in			July 2026	
Subject code		ICC504PFA II		Subject Name		PROGRAMMING FOR ANALYTICS – II			
Teaching scheme					Examination scheme (Marks)				
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	3	0	0	0	3	Theory	50	50	100
Hours	3	0	0	0	3	Practical			
Pre-requisites:									
Objective: This course enables students on using the SAS macro facility to design, write, and debug macro programs, with an emphasis on understanding how programs that contain macro code are processed. This course also teaches processing of datasets using Structured Query Language (SQL).									
<b>Course Outcome:</b> Learn how to: CO1: Perform text substitution in SAS code. CO2: Use macro variables and macro functions. CO3: Automate and customize the production of SAS code. CO4: Conditionally or iteratively construct SAS code. CO5: Write self-modifying, data-driven programs. CO6: Query and subset data. CO7: Summarize and present data. CO8: Combine tables using joins and set operators. CO9: Create and modify tables and views. C10: Create data-driven macro variables using a query. C11: Access DBMS data with SAS/ACCESS technology.									
Theory syllabus									
Unit	Content								Hrs
1	<b>Introduction</b> Why SAS macro? Setting up for this course.								2
2	<b>SAS Macro Facility</b> Program flow. Creating and using macro variables.								3
3	<b>Storing and Processing Text</b> Macro functions. Using SQL to create macro variables. Using the DATA step to create macro variables. Indirect references to macro variables.								4
4	<b>Working with Macro Programs</b> Defining and calling a macro. Macro variable scope. Conditional processing. Iterative processing.								5
5	<b>Developing Macro Applications</b> Storing macros. Generating data-dependent code. Validating parameters and documenting								4

Note: Version 1.0.0.0 (First Digit= New syllabus/Revision in Full Syllabus, Second Digit=Revision in Teaching Scheme, Third Digit=Revision in Exam Scheme, Forth Digit= Content Revision) L=Lecture, TU=Tutorial, P= Practical/Lab., TW= Term work, DT= Direct Teaching, Lab.= Laboratory work  
CE= Continuous Evaluation, SEE= Semester End Examination

	Macros	
6	<b>Essentials</b> Setting up for this course. Overview of SAS Foundation. Course logistics. Course data files. Introducing the Structured Query Language. Overview of the SQL procedure. Exploring tables. Specifying columns	3
7	<b>PROC SQL Fundamentals</b> Subsetting data. Presenting data. Summarizing data. Creating and managing tables. Using DICTIONARY tables	4
8	<b>SQL Joins</b> Introduction to SQL joins. Inner joins. Outer joins. Complex SQL joins	4
9	<b>Subqueries</b> Noncorrelated subqueries. Correlated subqueries. In-line views. Creating views with the SQL procedure. Subqueries in the SELECT clause. Remerging summary statistics.	4
10	<b>Set Operators</b> Introduction to set operators. The INTERSECT operator. The EXCEPT operator. The UNION operator. The OUTER UNION operator.	4
11	<b>Using and Creating Macro Variables in SQL</b> Interfacing PROC SQL with the macro language. Creating data-driven macro variables with a query. Using macro variables in SQL.	4
12	<b>Accessing DBMS Data with SAS/ACCESS</b> Overview of SAS/ACCESS technology. SQL pass-through facility. SAS/ACCESS LIBNAME statement & PROC Fed SQL	4
<b>Reference Books</b>		
	<ol style="list-style-type: none"> <li>1. SAS® SQL 1: Essentials, SAS Official Course Notes, SAS Publishing. Cary, U.S.A. Latest Edition.</li> <li>2. SAS® Macros: Essentials, SAS Official Course Notes, SAS Publishing. Cary, U.S.A. Latest Edition.</li> </ol>	