



GITAM INSTITUTE OF MANAGEMENT (GIM)
Gandhi Institute of Technology and Management (GITAM)
(Declared as Deemed to be University u/s 3 of UGC Act. 1956)
Visakhapatnam – 45.

Course Code: MAN 106	Course Title: Calculus -2	
Semester: II	Course Type: Core	Credits: 4
Home Programme(s): BBA(BA)	Batch/Academic Year: 2020-2023	
Course Leader:		

Course description and learning objectives

Sequence of differential and integral calculus with applications. The course covers the techniques and applications of integration, the transcendental functions, and their inverses, as well as an introduction to differential equations.

Learning objectives:

- Investigate important applications of integration, such as arc length, area of surfaces, and volume of solids.
- Introduce and explore the calculus of exponential, logarithmic, and inverse trigonometric functions.
- Study some more advanced techniques of integration and estimation of definite integrals.
- Explore basic techniques for solving and applications of ordinary differential equations.

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

	Course Outcomes	Assessment
CO1	Understanding to basic techniques for solving and applications of ordinary differential equations	A1,A3
CO2	Apply to advanced techniques of integration and estimation of definite integrals.	A1,A3,
CO3	Analyze to investigate important applications of integration, such as arc length, area of surfaces, and volume of solids.	A2,A3,
CO4	Evaluate to the calculus of exponential, logarithmic, and inverse trigonometric functions	A2,A3,
CO5	Create an edge for the business	A3, A4

Course outline and indicative content

Unit – I (12 sessions) (CO1, CO2, L2, L3)

Successive differentiation: Introduction , Successive differentiation – nth derivatives, Leibnitz theorem and its application .

Unit – II (13 sessions) (CO2, CO3, CO4, L2, L3, L4)

Indefinite integration: Standard forms , properties of integrals , Methods of substitution – integration of algebraic , Exponential , logarithmic , trigonometric and inverse trigonometric functions, integration by parts , integration – partial fraction methods

Unit – III (11 sessions) (CO2, CO3, CO4, L3, L4, L5)

Definite integration : The definite integrals , interpretation of definite integral as an area , Fundamental theorem of integrals calculus , properties of calculus

Unit – IV(11 sessions) (CO1, CO3, L2, L4)

Applications of integration : Areas under and between curves, integration using partial fractions, integration by parts, Some Business applications.

Unit – V (13 sessions) (CO1, CO4, L2, L4)

Differential Equations : Formation of differential equations – Degree and order of an ordinary differential equation, Solving differential equation by Variable separable method , Homogeneous differential equation, Non - Homogeneous differential equation , First and Second order Linear Differential Equations with constant coefficients-.

Assessment methods

Task	Task type	Task mode	Weightage (%)
A1. Mid exam	Individual	Written	20
A2. Coursera	Individual	Presentations / Q&A/Viva	10
A3. Class room presentation/Seminars and Case analysis/workshop/training/Assignments/survey/ Project	Groups	Presentations / Report with Q&A/Viva	10
A4. End-term exam	Individual	Written (short/long)	60

Mapping COs - Blooms levels- Assessment Tools

Knowledge dimension / cognitive dimension	L1. Remember	L2. Understand	L3. Apply	L4. Analyze	L5. Evaluate	L6. Create
Factual Knowledge		CO1 (A1, A3)				
Conceptual Knowledge			CO2 (A1, A3)			
Procedural Knowledge		CO1 (A1, A3)	CO2 (A1, A3)	CO3 (A2,A3)	CO4 (A2,A3)	
Meta Cognitive Knowledge				CO4 (A2,A3)	CO5 (A2, A3,A4)	

Learning and teaching activities

Mixed pedagogy approach is adopted throughout the course. Classroom based face to face teaching, directed study, independent study via G-Learn, case studies, projects and practical activities (individual & group).

Teaching and learning resources

Soft copies of teaching notes/cases etc. will be uploaded onto the G-learn. Wherever necessary, printouts, handouts etc. will be distributed in the class. Prescribed text book will be provided to all. However, you should not limit yourself to this book and should explore other sources on your own. You need to read

different books and journal papers to master certain relevant concepts to analyse cases and evaluate projects. Some of these reference books given below will be available in our library.

Books for Reference:

1 The required text is CALCULUS, 9th Edition, by Anton, Bivens, and Davis.

CO PO Mapping

**This is to map the level of relevance of the Course Outcome (CO) with Programme Outcome (PO).
0= No Relevance; 1= Low Relevance; 2= Medium Relevance; 3= High Relevance**

CO PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	Sum
	CO1	3	2	0	0	2	2
CO2	2	2	0	0	2	2	8
CO3	3	3	0	0	2	2	10
CO4	2	2	0	0	2	2	8
CO5	2	2	0	0	2	2	8
Target Level Max.	12	11	0	0	10	10	43

BBA(BA) -Programme Outcomes (POs)

1. Ability to understand the business problem with their knowledge in different functional areas of management
2. Integrate with structured, semi – structured and unstructured data.
3. Utilize the tools such as Microsoft Excel, SPSS, R, Weka and Tableau to solve business analytics problem
4. Ability to apply analytics techniques to analyze and interpret the data.
5. Incorporate the descriptive, predictive and prescriptive analytics.
6. Evaluate the necessary skills and understanding to take up advanced topics in the area of analytics and thus enhance their career.