



Code	CBM201	Prerequisites	CBM102
Name	Integral Calculus	Co-requisites	None

Credits	Contact Hours
05	
Categorization of credits	
Math and basic science	X
Engineering topic	
Other	

Coordinator's name	Edward Segura
--------------------	---------------

Text book
Stewart J. (2012). "Calculus of a variable" (Early Transcendents). (7th Edition). Mexico: Editora Cengage Learning.
Other supplemental materials
• Thomas, G. / Finney, R. (2005). Calculus and analytical geometry. (8th Edition-Vol. 1). Mexico: Editorial Addison-Wesley Iberoamericana. • Purcell E. / Varberg D. / Rigdon S. (2007). Calculus with analytical geometry. (9th. Edition). Mexico: Publisher Pearson Education. • Zill, D. / Wright, W. (2011). Calculation. Early Transcendents. (4th Edition). Mexico: Editorial McGraw-Hill. • Leithold, L. (1998). Calculus with analytical geometry. (7th Edition). Mexico: Publisher Harla. • Swokowski, E. (1989). Calculus with Analytic Geometry (2nd Edition). Mexico: Iberoamerica Publishing Group. •

Description
The general competence that will guide the entire development of the subject is the formulation of the concept of Definite Integral, which represents the basic concept of Integral Calculus. This course intends for students to obtain knowledge of the fundamental principles of Integral Calculus, and everything related to the concepts of Indefinite and Definite Integral. Emphasis is placed on the study of the different integration techniques; applications of the definite integral, especially the determination of areas between curves and volumes; in addition to studying infinite sequences and series, to link calculus with situations of daily life.

Type of course	☒ Required ☐ Elective
----------------	---

Specific goals for the course	
Outcomes of instruction	EG1. Identify different problems of everyday life (area under a curve and between two curves, distance traveled by an object moving in a straight line, average value of a function, arc length of a curve, etc.) that are solved by posing and calculating a Definite Integral, to confirm the importance of Integral Calculus. EG2. Assess the knowledge and need for Integral Calculus to provide answers to specific situations that arise in their professional area (calculate volumes of solids, determine the work done by a force, applications in Engineering and Economics, etc.). EG3. Share with classmates the excitement of solving problems using mathematics, to demonstrate the pleasure of solving real problems through collaborative work. EG4. Allow the help of classmates, through integration into work groups, for a better understanding of any mathematical topic covered in the subject.
Student outcomes	CG1. Identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics. CG2. Demonstrate logical-mathematical thinking ability in the analysis and interpretation of reality.

Topics
Unit I. Integrals. Unit II. Integration techniques Unit III. Integration applications. Unit IV. Infinite sequences and series