

Code	CBM208	Prerequisites	CBM203
Name	Linear Algebra	Co-requisites	

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

Coordinator's name	Edward Segura
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Text book
Larson, R. (2013) Fundamentals of Linear Algebra. (7th Edition). Mexico: Publisher Cengage Learning.
Other supplemental materials
<p>Anton H. (2005), Introduction to Linear Algebra. (3rd Edition). Mexico: Ed. Limusa.</p> <p>Kolman, Bernard, and Hill, David R. (2006). Linear Algebra (8th Edition). Mexico: Pearson education.</p> <p>Lay, David C. (2007). Linear algebra and its applications. (4th Edition). Mexico: Pearson education.</p> <p>Del Valle Sotelo, J.C. (2011). Algebra lineal para estudiantes de ingeniería y ciencias. México: Instituto Tecnológico de Monterrey. Ed. Mc Graw Hill</p> <p>Grossman, Stanley L. (2008). Linear Algebra (7th Edition). Mexico: McGraw Hill</p>

Description
<p>Through the theoretical foundations of linear algebra, the student will be able to develop the ability to reason mathematically and transfer that knowledge and skills to various applications. Its applications in applied mathematics, engineering, business administration and economics and in different areas of the natural sciences are innumerable.</p> <p>In the development of the course, the student acquires the most pertinent skills in relation to the study of matrices and systems of equations, they will also be able to obtain the solution of various systems of equations, as the fundamental tool to solve problems that are presented in the rest of the chapters. After the introduction of vectors, they will be able to identify vector spaces as a means of obtaining geometry that is algebraic and does not depend on a coordinate system. In addition, they will identify the character of relevance of the topic of diagonalization and own values.</p>

Type of course	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective

Specific goals for the course	
Outcomes of instruction	<p>EG1. Respect and cooperate with their classmates in carrying out practical exercises with vector spaces, in order to demonstrate solidarity and harmony in the search for solutions to problems posed.</p> <p>EG2. Demonstrate interest in scientific rigor in conducting research related to matrices and vectors in order to effectively solve exercises with given equations.</p> <p>EG3. Look for solutions to linear transformation exercises, demonstrating appropriate ethical behavior in expressing the truth in finding the results of the proposed exercises.</p>
Student outcomes	<p>CG1. Identify, formulate, and solve complex engineering problems by applying the principles of engineering, science, and mathematics.</p> <p>CG2. Demonstrate logical-mathematical thinking ability in the analysis and interpretation of reality.</p>

Topics
Unit I. Matrices, determinants and systems of equations. Unit II. Vector spaces. Unit III. Vector spaces with inner product. Unit IV. Linear transformations. Unit V. Eigenvalues and vectors.