San Pablo Catholic University (UCSP)
Faculty of Engineering and Computing
Department of Industrial Engineering
School of Industrial Engineering

Book of short descriptions by course

– 2026-I–

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Contents

Chapter 1

First Semester

1.1 MA111. Calculus I

This course introduces the fundamental concepts of differential and integral calculus of single-variable real functions. It provides the mathematical foundations necessary for analyzing problems in science and engineering, developing logical reasoning and problem-solving skills through limits, derivatives, and integrals. The course emphasizes both conceptual understanding and practical application of these concepts.

1.2 MA121. Linear Algebra

This course introduces the fundamental concepts of linear algebra, providing the mathematical foundations for the study of vector spaces, linear transformations, and systems of linear equations. It develops abstract thinking and problem-solving skills through matrices, determinants, and vectors. The course is fundamental for applications in science, engineering, and computing.

1.3 FI101. Physics I

Physics is essential for understanding the world around us, and its principles are fundamental in many areas of computer science, such as computer graphics, physical simulations, and robotics. This course introduces the basic concepts of classical mechanics, including kinematics, dynamics, work, and energy.

Chapter 2

Second Semester

2.1 MA112. Calculus II

This course continues the study of calculus with functions of several variables, integrating concepts of vector calculus, partial derivatives, multiple integrals, and geometric and physical applications. It develops skills for modeling and solving problems in three dimensions, providing the foundations for advanced areas such as mathematical analysis, physics, and engineering.

2.2 FI102. Physics II

Write justification for this course here ...

Chapter 3

Third Semester

3.1 MA211. Calculus III

This course advances the study of multivariable calculus, integrating concepts of vector calculus, vector fields, line and surface integrals, and fundamental theorems of vector calculus. It develops skills to analyze scalar and vector fields in space, providing foundations for applications in physics, engineering, and computational sciences.

Chapter 4

Fourth Semester

4.1 MA212. Differential Equations

This course introduces fundamental methods for solving ordinary and partial differential equations. It develops skills for modeling dynamic phenomena in physics, engineering, and sciences through differential equations, providing mathematical foundations for analyzing continuous systems and simulating natural processes.

4.2 MA351. Statistics and Probabilities

This course introduces the fundamentals of probability theory and statistics, providing mathematical foundations for data analysis and statistical inference. It develops skills for modeling random phenomena, conducting hypothesis testing, and applying statistical methods to problems in science, engineering, and social sciences.

Chapter 5

Fifth Semester

Chapter 6

Sixth Semester

Chapter 7

Seventh Semester

Chapter 8

Eighth Semester

Chapter 9

Ninth Semester

Chapter 10

Tenth Semester