



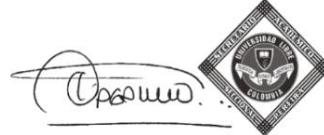
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FREE UNIVERSITY PEREIRA SECTION

UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING



SUBJECT: CALCULUS I

CODE: -----

SEMESTER: FIRST

HOURS WEEKLY: 4

THEORETICAL: 4

PRACTICES: 0

GOALS.

- That the student is able to define and analyze the properties of the concepts of limit, continuity and derivative
- That the student is able to interpret and analyze the properties of the concept of integration as a generalized sum

METHODOLOGY.

The course will be developed with master lectures by the professor on the content basics of the subject; for their part, students will strengthen their knowledge of the subject





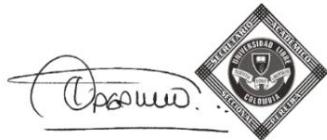
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through recommended readings, consultations with the teacher and the development of problems of application.

WORK PROGRAM.



- Limits and their properties

- Continuity

ÿ Derivation of different functions: trigonometric, logarithmic, exponential, etc.

ÿ Related reasons

- Applications of the derivative

- First derivative; concavity, second derivative criterion

- Integration

ÿ Integration of different functions

- Integration by simple fractions; special cases of integration; improper integrals

- Applications of the integral

ÿ Work; moments, centers of mass and centroids; arc length and surface area

revolution

- Infinite series; sequences; series and convergences, comparison criteria

ÿ Integral criterion; quotient and root criteria; alternating series; series of

Taylor and MacClaurin series powers

LITERATURE.





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THOMAS APOSTOL, Calculus, Volume 1

AYRES, MENDELSON Differential and Integral Calculus Schaum Series, McGraw Hill

MEDINA, Introduction to Calculus, McGraw Hill

