



**UNIVERSIDAD LIBRE®**

Personería Jurídica No. 192 de 1946 de Mingobierno  
Nit.: 860.013.798-5



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**FREE UNIVERSITY PEREIRA SECTION**

**UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING**



**SUBJECT: ECONOMIC ENGINEERING**

**CODE: 12736**

**SEMESTER: SEVENTH**

**HOURS WEEKLY: 4**

**THEORETICAL: 4**

**PRACTICES: 0**

**REQUIREMENTS: CONSTRUCTION MANAGEMENT**

**GOALS :**

Offer the student the theoretical knowledge and technical tools that it provides.

Economic engineering for its application in the evaluation of project alternatives investment.

To train the student in understanding and preparing cash flows, calculating rates interest, present values, IRR, TMAR and other very useful tools.

**METHODOLOGY:**





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Master lectures by the teacher, combined with the practice of multiple exercises and carrying out research work in which the tools of the financial mathematics.



## **CONTENT :**

1. Fundamental concepts: basic terminology, interest calculations, TMAR, interest simple and compound.
2. Cash flow diagrams: Symbols and meaning, placement in time, tabulation cash flow and flowcharts
3. Nominal and effective interest rates: formulas and calculations for different periods of capitalization.
4. Uniform Gradients: Definition and cash flow of uniform gradients. Use of tables, present value of conventional and decreasing gradients.
5. Evaluation of the rate of return: calculations, evaluation of alternatives by the method CAUE
6. Accounting for engineers: balance sheet, profit and loss statement, ratios accounting, manufacturing expense allocation, tax structure, formulas and calculation of tax obligations.

The TMAR: Types of Financing and Capital. Financial Cost, Variations in the TMAR





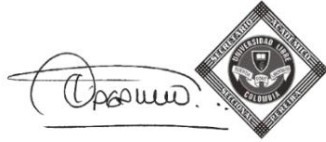
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## BIBLIOGRAPHY:



Tarquin A. and Blank L. Economic Engineering. McGraw Hill, Mexico. 1980

MORENO B. The Mathematics of Financial Investment and Its Applications. Bogotá, 1988

INFANTE A. Economic evaluation of investment projects. Bogotá, 1992

