# NATIONAL UNIVERSITY OF ENGINEERING
## COLLEGE OF CHEMICAL AND TEXTILE ENGINEERING
## TEXTILE ENGINEERING PROGRAM

# PIT82 – TEXTILE RESEARCH PROJECT I

## I. GENERAL INFORMATION

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| **CODE** | **:** | PIT82 Textile Research Project I |
| **SEMESTER** | **:** | 9 |
| **CREDITS** | **:** | 2 |
| **HOURS PER WEEK** | **:** | 4 (1 Theory – 3 Practice) |
| **REQUISITES** | **:** | Have approved at least 150 credits |
| **CONDITION** | **:** | Mandatory |

## II. COURSE DESCRIPTION

The course includes the development of each of the stages that occur in the execution of textile investment projects, from the study of market and commercialization, project engineering, manufacturing engineering, location and optimum size of the plant , the profitability of the investment, the sensitivity of a project in general and in the textile and clothing sector.

## III. COURSE OUTCOMES

1. **Knows** the stages that investment projects must cover.
2. **Forecasts** demand and supply.
3. **Applies** the technical studies to establish the location and size of plant and choose the productive process.
4. **Understands** the purpose of management in investment projects.
5. **Formulates** the financial statements required for the financial evaluation of an investment project.
6. **Calculates** financial evaluation indicators.
7. **Identifies** the types of risk in an investment project.
8. **Explains** the feasibility of an investment project.

## IV. LEARNING UNITS

### 1. INTRODUCTION, IDENTIFICATION, STAGES AND STUDIES OF INVESTMENT PROJECTS (5 hours)

Definition and fundamental concepts for the formulation of investment projects / Study and the scope of the project / Classification of projects / Objectives and goals of the project / Stages of an investment project / Identification of the idea / Business diagnosis / formulation and evaluation / Pre-feasibility / Feasibility / Parts that integrate a study of Feasibility / Studies that make up the Investment Projects.

### 2. MARKET STUDY (10 hours)

Market definition / Market research objectives / Main aspects of a market study / Market definition / Market types: monopoly, perfect competitive, oligopoly / Methodology to conduct a market study / Product / Product Classification / Cycle Of product life. Analysis of Demand and Supply / Classification / Target Market / Projections. Price Analysis / Marketing / Marketing Strategies / Marketing Channels / Foreign Trade.

3. **TECHNICAL STUDY OF THE PROJECT (10 hours)**
   Project Engineering / Engineering Study Scope / Product / Good Engineering / Manufacturing Engineering / Manufacturing Process / Technological Alternatives: Technology Choice / Optimal Production Capacity / Equipment Selection / Technical Specifications / Size Analysis Of the project / Factors that determine the location of the plant.

4. **ADMINISTRATIVE STUDY (5 hours)**
   Stages of the Administrative Process / Company Definition / Types of Companies / Patents / Brands / Organization of the Company / Types of Organization / Characteristics of each one of them / Organizational charts and types.

5. **FINANCIAL STUDY OF THE PROJECT (12 hours)**
   Objective / Preparation of Financial Statements / Income Statement / Revenue Budget / Production Costs Budget / Administration Expenditure Budget / Sales Expenses Budget / Comprehensive Financing Cost / General Balance Sheet / Financial Evaluation.

6. **ECONOMIC EVALUATION OF THE PROJECT (8 hours)**
   Total investment / Pre-commissioning investments / Fixed investment / Tangible assets / Services and support infrastructure / Investment in intangible goods / Working capital / Total costs of the product / Production costs / Overheads.

7. **THE ECONOMIC ANALYSIS OF THE PROJECT (4 hours)**
   Risk analysis / Sensitivity analysis / Feasibility of an investment project.

## V. LABORATORY AND PRACTICAL EXPERIENCES

In the laboratories, the students will develop cases of: study of plant size, selection of machinery and equipment, line balance, investments, costs and revenues; exercises on economic indicators, 4 qualified practices and two exhibitions of the project developed throughout the course.

## VI. METHODOLOGY

The course is developed in sessions of theory and practice. In theory sessions, the teacher explains the concepts, shows cases and videos, promoting the active participation of students in class who investigate on the subject according to the syllabus. In the laboratory sessions, each of the topics mentioned in item IV are developed together in teams.

## VII. GRADING FORMULA

The evaluation system is F. The Final Average (PF) is calculated:

$$PF = (EP + 2*EF + PP)/4$$

EP : Midterm exam
EF : Final exam
PP : Average of practices

## VIII. BIBLIOGRAPHY


1. Arturo Morales Castro **"Investment Projects"** Editions Mc Graw Hill.
2. Nassir Sapag Chain and Reinaldo Sapag Chain **"Project preparation and evaluation"**. 3rd Edition by Editorial Mc.Graw Hill 1995.