



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

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**EP818 – COSTS AND BUDGETS**

**I. GENERAL INFORMATION**

<b>CODE</b>	: EP818 Costs and Budgets
<b>SEMESTER</b>	: 8
<b>CREDITS</b>	: 3
<b>HOURS PER WEEK</b>	: 4 (Theory, Practice)
<b>PREREQUISITES</b>	: EP307 Business Economics, PA714 Operations Research I
<b>CONDITION</b>	: Compulsory

**II. COURSE DESCRIPTION**

The course prepares students in the understanding and application of the methods of costs accumulation systems in manufacturing industry, identifying all resources required in a production process including raw materials and work force, considering an efficient and rational use of the resources. Students calculate direct and indirect costs using several costing methods. Likewise students determine the required budget to complete a project in a given time, as well as the required investment. Specialized software is used for determining costs, budgets, cash flow and investment plans.

**III. COURSE OUTCOMES**

At the end of the course, students:

1. Identify the required resources to fabricate a product and determine the costs of each component.
2. Determine the direct and indirect costs of a product or service.
3. Elaborate budgets to complete a project in a given period of time making an efficient use of raw materials, work force and other required resources.
4. Plan and determine short-term and long-term investment required to complete a project, and take into account the time value of money.

**IV. LEARNING UNITS**

**1. INTRODUCTION AND GENERAL CONCEPTS**

Introduction to cost systems / Business economic-financial information / Costs behavior / Costs as management and decision tools / Expense, cost and income / Functions of a manufacturing company / Organization structural chart / Cost flow of final product.

**2. COSTS**

Elements of a cost system / Production cost / Cost classification / Resources cost / Human resources cost / Direct and indirect fabrication costs / Fixed, variable and semi-variable costs / Batch process costs and continuous process cost / Real, historic and pre-determined costs / Absorption costs / Manufacturing, marketing, administration, financial costs / Opportunity cost.

**3. RAW MATERIALS AND RESOURCES**

Materials cost and control / Process of using raw materials / Materials purchase, use and control / Methods of materials costing / Inventory period based costing / Human resources

costa and control / Working times / Human resources cost assignment by departments / Learning curve.

#### **4. COSTING METHODS**

Fabrication indirect costing and control / Included costs / Estimation of total indirect costs / Estimation of production levels / Determination of rates of indirect costs / Work order based costing / Determination of indirect costs by work order / Process based costing / Cost flow / Unit cost and total cost / Standard cost / Standard types / Costs standards / Variation analysis

#### **5. BUDGET**

Budget, concepts and applications / Project planning / Master budget / Operating budget / Sales budget / Production budget / Purchase of direct materials / Direct work force / Indirect fabrication costs / Sales budget / Administration cost budget / Income forecast.

#### **6. CAPITAL BUDGET**

Planning of long term investment / Capital budget program / Investment evaluation methods / Investment control / Money value over time / Interest rate.

### **V. METHODOLOGY**

The course takes place in theory and practice sessions. In theory sessions, faculty presents the concepts and methods. In practice sessions, students solve different problems related to costing, budget and investment. Students work in groups to complete a report on costs and budgets of a given industrial company. Student's active participation is promoted throughout the course.

### **VI. GRADING FORMULA**

The Final Grade PF is calculated as follow:

$$PF = (EP + EF + PL) / 3$$

EP: Mid-term Exam.                      EF: Final Exam.  
PL: Average grade of Practice Works.

### **VII. BIBLIOGRAPHY**

#### **1. CASHIN James**

Fundamentals and Techniques of Costs Accounting  
Mc Graw Hill, Mexico, 2002

#### **2. BACKER Morton**

Costs Accounting  
Mc Graw Hill, Mexico, 2002

#### **3. BLANCK Leland**

Economics Engineering  
Mc Graw Hill, Mexico, 1998