



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

---

**PI100 – INTRODUCTION TO CHEMICAL AND TEXTILE ENGINEERING**

**I. GENERAL INFORMATION**

<b>CODE</b>	: PI100 Introduction to Chemical and Textile Engineering
<b>SEMESTER</b>	: 1
<b>CREDITS</b>	: 1
<b>HOURS PER WEEK</b>	: 2 (Theory, Practice)
<b>PREREQUISITES</b>	: None
<b>CONDITION</b>	: Compulsory

**II. COURSE DESCRIPTION**

The course presents to students a general introduction of the chemical and textile industries, their application fields, scope, supporting technologies, development and opportunities in Peru and the world. The course also introduces the laboratories available at the National University of Engineering, most relevant experiences and tests, and research projects. Safety, environment care and ethical issues respect to the profession are analyzed, as well as research and technological trends in both engineering fields.

**III. COURSE OUTCOMES**

At the end of the course, students:

1. Understand the concept of chemical engineering, their scope and application fields.
2. Understand the fundamentals of most relevant chemical process, as well as appraise the importance of an efficient use of energy.
3. Understand the concept of textile engineering, their scope and application fields.
4. Understand the fundamentals of most relevant textile process, as well as appraise the importance of an efficient use of energy.
5. Appraise the importance of teamwork for completing large-scale projects.

**IV. LEARNING UNITS**

**1. INTRODUCTION AND GENERAL CONCEPTS**

- History of chemical industry
- Chemical engineering: scope and fields
- Trends and future of chemical engineering
- History of textile engineering
- Synthesis of artificial textile fibers
- Trends and future of textile fibers and fabric
- Science a technology development
- Working fields of chemical engineer and textile engineer

**2. INDUSTRIAL DEVELOPMENT IN PERU**

- Organic products industries
- Inorganic products industries
- Energy: importance and future
- Petroleum refining industries
- Camisea natural gas and its industrialization

- Natural gas based petro-chemistry
- Cotton based textile industry
- Biotechnology

### 3. RESEARCH AND ENGINEERING

- Research and development
- Introduction to bibliography searching

### 4. BIBLIOGRAPHY RESRACH TOPICS

- Environmental protection
- Peruvian natural colorants
- Cement industry
- Plastics industry
- Synthetic textile fibers
- Food industry
- Textile industry based on South-american camelid wool

## V. METHODOLOGY

The course takes place in theory and practice sessions. In theory sessions, faculty presents the concepts and methods. In practice sessions, students analyze different applications of chemical engineering and textile engineering. Students work in groups to complete a report on the technologies supporting a given chemical or textile industry field. 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. SALINAS J.

Chemical Engineering. Future Process and Technology  
National University of Engineering, Peru, 2000.

### 2. KIRK, OTHEMER

Chemical Industries  
Mc Graw Hill, 1980.

### 3. GINI Facorte

Industrial Chemistry  
John Wiley and Sons, Inc., 1996.