



**NATIONAL UNIVERSITY OF ENGINEERING**  
**COLLEGE OF GEOLOGICAL, MINING AND METALLURGICAL**  
**ENGINEERING**

**MINING ENGINEERING PROGRAM**

---

**MI622 – NON-METALLICS AND THEIR MARKETING**

**I. GENERAL INFORMATION**

<b>CODE</b>	: MI622 Non-Metallics and Their Marketing
<b>SEMESTER</b>	: 6
<b>CREDITS</b>	: 3
<b>HOURS PER WEEK</b>	: 5 (Theory–Practice)
<b>PREREQUISITES</b>	: BEG01 Economy TM527 Mining Topography
<b>CONDITION</b>	: Compulsory
<b>DEPARTMENT</b>	: Mining Engineering

**II. COURSE DESCRIPTION**

The course prepares students for describing and applying non-metallic elements and products for diverse uses. Students analyze the geographical distribution of non-metallic elements and compounds in different regions of the country, as well as the potential exploitation. Students also analyze the processing of non-metallic compounds, and the evolution of markets and prices in local and global markets.

**III. COURSE OUTCOMES**

At the end of the course, students:

1. Understand and explain the geographical distribution of non-metal products.
2. Understand basic processes for non-metal transformation, as well their market and price evolution.
3. Comparatively analyze processing and commercialization activities of metal and non-metal products.

**IV. LEARNING UNITS**

**1. INTRODUCTION**

Comparison between metal and non-metal characteristics and processing operations / Importance of non-metal products in industrial development / Geographical distribution of non-metals in Peruvian regions / Non-metal products markets, supply, demand and price / Carbon, petroleum and natural gas / Construction materials, sand, gravel, stone.

**2. NON-METALLICS I**

Barite / Clay / Sulfur / Asbestos / Bentonite / Borax / Borates.

**3. NON-METALLICS II**

Fertilizer minerals / Phosphates / Potassium / Nitrates / Lime / Cement.

**4. NON-METALLICS III**

Marble / Feldspar / Fluorine / Bauxite.

**5. NON-METALLICS IV**

Talc / Cast / Mica / Salt / Precious minerals / Diamond / Ruby / Sapphire / Emerald / Beryl / Opal / Jade.

## **6. NON-METALLICS V**

Abrasive minerals / Industrial diamond / Corundum / Emery / Garnet / Other minerals.

## **V. METHODOLOGY**

This course is organized in sessions of theory, practice and field visits. In theory sessions the concepts and applications are explained. In practice sessions, real cases related to tunnel construction and operations. In field study sessions, students visit mining fields with tunnel construction and operation. St the end of the course, students present a final report on a subject of the course.

## **VI. GRADING FORMULA**

The Final Grade PF is calculated as follow:

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

EP: Mid-term Exam                      EF: Final Exam

PP: Average grade of practice work

## **VII. BIBLIOGRAPHY**

### **1. SUCLY W.**

Industrial Minerals and Rocks  
Mudd Series, 2015.

### **2. BUSTAMANTE, Jose**

Non-Metal Minerals, 2010