



NATIONAL UNIVERSITY OF ENGINEERING

COLLEGE OF CIVIL ENGINEERING

CIVIL ENGINEERING PROGRAM

TV661 – TRANSPORT ENGINEERING

I. GENERAL INFORMATION

CODE	: TV661 – Transport Engineering
SEMESTER	: 6
CREDITS	: 02
HOURS PER WEEK	: 02 (Theory)
PREREQUISITES	: EC511 – Soil Mechanics HH223 – Fluid Mechanics I TV561 – Satellite Geodesics
CONDITION	: Mandatory

II. COURSE DESCRIPTION

The course aims to ensure that students can acquire critical thinking and a clear picture of the road infrastructure in the country. For this, the general concepts of transport engineering, the elementary criteria for conceptualization and design of road infrastructure works with emphasis on roads, railways, ports and airports are presented. In addition to introducing the concepts of market, cargo, transport and natural conditions. Likewise, the course aims to provide preliminary information to the formation of subsequent courses aimed at the design of each of the mentioned specialties.

III. COURSE OUTCOMES

At the end of the course the student will:

- Assess the scope of civil engineering applied to the conceptualization of the design of transport works.
- Know the main types and characteristics of civil works applied to transport.
- Recognize the supply and demand of freight and passenger transport, as well as the needs for the implementation of transport works.
- Pose the procedures for the design, at the conceptual level, of transport works.
- Know in order of magnitude: the costs, advantages and possibilities for the development of transport works.

IV. LEARNING UNITS

1. DEFINITION OF TRANSPORT ENGINEERING

Concepts of transport modalities; Reasons for Transportation; Routes in Transportation; Government entities that govern and govern transport in the country;

2. TRANSPORT PLANNING

Desired state vs real state; Transportation Systems, Logistics Transportation Brokers; Peruvian reality and its context in the world. Glossary of terms in Road Infrastructure.

3. IMPORTANCE OF ROAD SAFETY.

Roadside considerations; Road safety to the Infrastructure.

4. RAILWAYS

Generalities of the Railways, Glossary of terms. Cargo and Rolling Materials Considerations; Area of influence. Importance of Rail Safety. Environmental Considerations General aspects of the Design of the Railways.

5. PORTS

Port Overview, Glossary of terms. Cargo Considerations and Ship Types; Area of influence. Importance of Port Security. Environmental Considerations General aspects of Port Design.

6. AIRPORTS

Generalities of airports, Glossary of terms. Cargo considerations and types of aircraft; Area of influence. Importance of Airport Security. Environmental Considerations General aspects of Airport Design.

V. METHODOLOGY

The methodology of the course will be presented by master classes by specialists accompanied by audiovisual materials and slides. As well as field trips for knowledge of road infrastructure. The course will have four stages that will be developed as follows:

The first will include the topics and general aspects about Roads, later a test and/or structured work will be taken that will be detailed in class by the teacher and the course coordinator.

The Second will include the topics and general aspects about Railways, later a test and/or structured work will be taken that will be detailed in class by the teacher and the course coordinator.

The Third will include the themes and general aspects about Ports, later a test and/or structured work will be taken that will be detailed in class by the teacher and the course coordinator.

The Fourth will include the themes and general aspects about Airports, later a test and/or structured work will be taken that will be detailed in class by the teacher and the course coordinator.

VI. EVALUATION FORMULA

The learning will be evaluated through the "G" system.

- Partial Exam (PE): Weight 1
- Final Exam (FE): Weight 1
- Average of Practices (P): Weight 1.

$$FA = \frac{PE + FE + P}{3}$$

Besides:

- Structured Work (SW): Weight 1, each
- Research Work (RW): Weight 1, each

$$P = \frac{SW1 + SW2 + RW1 + RW2}{4}$$

VII. BIBLIOGRAPHY

- European Commission, 2002, "White Paper: The European Transport Policy for: Time for Truth", Luxembourg, 2010.
- Advanced Logistic Group, "Transportation Logistics Services Development Plan", Lima, Peru, 2011.
- The road network of Peru. MTC April 2014