Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: TRANSPORT TECHNOLOGY AND ECONOMICS			
ACADEMIC YEAR: 2017 - 2018			
TYPE OF EDUCATIONAL ACTIVITY: Characterizing			
TEACHER: Prof. Umberto Petruccelli (6 ECTS – head teacher), Prof. Donato Ciampa (3 ECTS)			
e-mail: umberto.petruccelli@unibas.it donato.ciampa@unibas.it		website: https://elearning.unibas.it/	
phone: 0971-205173 - 0971-205117		mobile (optional):	
Language: Italian			
ECTS: 9 = (6 + 3) of which: 6,5 ECTS for lessons 2,5 ECTS for tutorials/ practice	n. of hours: 90 = (60 + 30) of which: 65 hours for lessons 25 hours for tutorials/ practice	Campus: Potenza School of Engineering Program: Bechelor's Degree in Civil and Environmental Engineering	Semester: 2th

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

This teaching is the only one of the transport sector as part of the Bachelor's Degree course and provides an overview of issues pertaining Transport, treating mainly the functional aspects of the transport systems and relations between mobility system, territory and economic resources.

The goal of the Teaching is to provide the knowledge of the phenomena related to the transport of people and goods, as well as the tools to solve simple problems of preliminary functional design and operation of transport systems.

The main knowledge provided are:

- Physical interaction between the way and the single land vehicle;
- Operation of the system consisting of infrastructure and the running vehicles;
- Interaction between transport demand, supply and land settlement;
- Resources required for mobility;
- Features of public transport systems.

The main skills transferred are:

- To study the motion of a land vehicle, given the features of the vehicle and the way;
- To study the flow conditions carried out on a way, with particular reference to roads, railways or cableways;
- To forecast the future demand for transport, by simple demand models;
- To select, at the outset, the most suitable transportation system to meet a certain mobility demand.

PRE-REQUIREMENTS

You must have acquired and assimilated the knowledge provided by the teachings of "Physics 1" and "Mathematical analysis 1"

SYLLABUS

- Module 1: Introduction and terminology
  - Identification of transport modes, systems, services and related performances
- Module 2: Interaction between the way and the single vehicle
  - Elements of mechanics of terrestrial locomotion
- Module 3: Interaction between the way and more running vehicles
  - Theory of road outflow (*)
  - The HCM 1994 Manual (*)
  - Levels of Service (LOS) for two-lane roads, multilane roads and highways (*)
  - Outflow in controlled density transport systems and functional characteristics of the major systems (railways, cableways)
- Module 4: Interaction between transport demand, supply and land settlement
  - Schematization of transport demand, land and supply of transport
  - The forecast of transport demand and its models
- Module 5: Interaction between transport and economic resources
  - Elements of economics
  - The transport market
  - Analysis of transportation costs

- Module 6: Functional and technological aspects of mass transit systems
  - The local public transit system (*)
  - Traditional and innovative transport systems (*)

(*) **The so marked topics are the responsibility of Prof. Ciampa**

TEACHING METHODS

The course includes:
- lectures on all subjects of the course for a total of about 65 hours;
- classroom exercises, developed by the teacher, on some topics of the course, for about 25 hours.

EVALUATION METHODS

Oral examination during which to ensure the knowledge and skills of the candidate.
Accordingly, the questions are designed to check the clear understanding, by the candidate, of the phenomena and of the quantitative tools available to conduct the necessary analysis. For the verification of skills, the candidate may also be required to develop, during the examination, a brief numerical application.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Reference text about the subjects dealt by Prof. Petruccelli:
- On-line teaching notes from https://elearning.unibas.it/

Reference text about the subjects dealt by Prof. Ciampa:
- On-line teaching notes from https://elearning.unibas.it/

Deepening text about the subjects dealt by Prof. Petruccelli:
- Russo Frattasi A. e G.G., (1989) Note di economia e pianificazione dei trasporti, CLUT, Torino
- Ricci, S., (2011), Tecnica ed economia dei trasporti, Hoepli, Milano
- de Dios Ortùzar J., Willumsen L. G. (edizione italiana a cura di Cerchi E., e Meloni I.) (2004), Pianificazione dei sistemi di trasporto, Hoepli, Milano
- Cantarella G.E. (2001), Introduzione alla tecnica dei trasporti e del traffico con elementi di economia dei trasporti, UTET, Torino
- De Luca M. (1992), Tecnica ed economia dei trasporti, CUEN, Napoli
- Orlandi, A. (1990), Meccanica dei Trasporti, Pitagora, Bologna

Deepening text about the subjects dealt by Prof. Ciampa:
- Agostinacchio M., Ciampa D., Olita S., (2011) La Progettazione delle Strade, II edizione, EPC Srl, Roma
- Ferrari P., Giannini F., (1998) Ingegneria Stradale-Geometria e progetto di strade, Vol. 1, ISEDI
- TRB-Transportation Research Board (1997) Highway Capacity Manual-Special Report 209

INTERACTION WITH STUDENTS

Prof. Petruccelli receives students in his studio, at the 4th floor of the School of Engineering, on Wednesday, by appointment to be taken by email. You can also make an appointment with Prof. Ciampa, by email.
The Professors are always available through their e-mail and soon after each lesson.

EXAMINATION SESSIONS (FORECAST)[1]

On the 1st and 3rd Wednesday of each month, except in August

SEMINARS BY EXTERNAL EXPERTS YES ● NO □

FURTHER INFORMATION

[1] Subject to possible changes: check the web site of the Teacher or the Department/School for updates.