Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: TRANSPORT TECHNOLOGY AND ECONOMICS			
ACADEMIC YEAR: 2018 - 2019			
TYPE OF EDUCATIONAL ACTIVITY: Characteristic			
TEACHER: Prof. Umberto Petruccelli			
e-mail: umberto.petruccelli@unibas.it		website: https://elearning.unibas.it/	
phone: 0971-205173 - 0971-205117		mobile (optional):	
Language: Italian			
ECTS: 9 of which: 6,5 ECTS for lessons 2,5 ECTS for tutorials/ practice	n. of hours: 90 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

The Teaching, which is the only one of the Transportation sector within the Degree course, aims to provide the basic tools to study the transport system.

Knowledge and ability to understand

To know and understand the problems related to people and freight transport, dealing mainly with the functional aspects of transport systems and the relationships between mobility, territory and economic resources.

Ability to apply knowledge and understanding

Being able to use quantitative tools to solve simple problems of transport systems preliminary functional design and operation.

The main knowledge provided are:

- The physical interaction between way and isolated land vehicle;
- The functioning system composed of the infrastructure and the vehicles that drive it;
- The interaction between demand, transport supply and settlement of the territory;
- The resources necessary for mobility.

The main skills transferred are:

- Study of the motion of a land vehicle, known the characteristics of the vehicle and the way;
- Evaluation of the flow conditions occurring on an way, with particular reference to roads, railways and cableways;
- Evaluation of the future transport demand by the use of simple models;
- Preliminary selection of the most suitable transport system to respond to a specific mobility demand.

Autonomy of judgment

To be able to autonomously identify transport problems and indicate the most appropriate methodologies to study it.

Communication skills

Knowing how to explain in a simple way, even to non-expert people but using an appropriate scientific language, the phenomena that govern the relationships between the demand, the transport supply, the territory settlement and the resources.

Learning ability

Being able to continuously update by selecting and consulting texts and publications more relevant to the phenomena to be studied, as well as to follow profitably other teachings of Transportation provided in master's degree courses at all universities.

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 Highway Capacity 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 transport supply
  - The forecast of transport demand and its models
- Module 5: Interaction between transport and economic resources
  - Elements of economics
  - Transport market
  - Analysis of transportation costs

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 to ascertain that the candidate achieved the training objectives and learning outcomes.
Accordingly, the questions are designed to check that the candidate has a clear understanding of the phenomena and of the quantitative tools available to conduct the necessary analysis. The evaluate 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/

Deepening text:

- 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
- Ferrari P., Giannini F., (1998) Ingegneria Stradale-Geometria e progetto di strade, Vol. 1, ISEDI.
- Agostinacchio M., Ciampa D., Olita S., (2011) La Progettazione delle Strade, II edizione, EPC Srl, Roma
- 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. The Professor is always available through his 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 page "*Servizi on line studenti/docenti*" on the Unibas web site for updates.