
Transportation network planning

Finalità

The course provides the methodological, theoretical, cognitive instruments qualified for evaluations of interventions on the mobility system in the urban and environmental transport planning process. The general concepts of demand-supply of transportation and the relative interactions evaluated with quantitative methods, are applied to people mobility demand and vehicular traffic forecasting system. Transportation planning models are developed and applied to strategic and operative planning actual cases. Arguments are developed by means phenomena analysis, models definition and case-study examination.

Programma

Urbanistic and transportation planning

National and Emilia Romagna regional district area rules: reading and talking over laws and regulations
Urbanistic planning instruments
The region and province district areas urbanistic planning
Municipal planning: PSC, POC, RUE
Transportation planning instruments
From National Transportation Master Plan to Urban Traffic Plan

Planning process methodology

Transportation system planning
Defining the transportation system: process and levels of planning
Transportation networks
Transportation supply modelling. Definition of graph. Zoning
Cost and performance functions
Transportation demand
Definition and features of transportation demand
Models of transportation demand: utility models. Structure of transportation forecasting models. Models of issue, distribution, selection, assignment. Estimation of demand by using models
Demand/supply interaction
Equilibrium of flows. Equilibrium of system
Calculating transportation network flows
Algorithms for the deterministic assignment model
Estimation of transportation demand
Transportation demand survey. Direct estimation of demand
Calibrating and checking the model
Using traffic flows for demand estimation. Estimation of O/D actual matrix of traffic flow
Valuation of transportation plan

Articulation of planning process

Strategic planning
Tactical planning
Phases and activities of strategic planning
Using transportation forecasting models for strategic planning activities

Contents and methods of strategic planning

National transportation master plan
Regional transportation master plan
Local transportation plan
Operational town-planning tools
The feasibility study of a plan

The sustainable mobility

The mobility management. Area district plan and companies home-work mobility plans
Innovating transportation systems
On call public transportation
Road & area pricing
Computers for transport and safety

Attività d'esercitazione

Treatment of exercises and applications on theoretical arguments. Case-studies examination of lessons arguments.

Modalità d'esame

Oral examination on lessons and exercitations arguments.

Testi consigliati

P. Ferrari, Fondamenti di pianificazione dei trasporti, Pitagora editrice, 2001; E. Cascetta, Metodi quantitativi per la pianificazione dei sistemi di trasporto, CEDAM, 1990.