



Introduction

Since Antiquity, cities have been the crossroads of peoples and of the nuclei of civilization. Born along trade routes, they were essential poles for trade and have become centres of knowledge, innovation and economy. The role of cities has become increasingly important in recent decades and this trend is expected to intensify in the near future, due to the continued displacement of populations from rural to urban areas. Currently 55% of the world population lives in cities, and this proportion is expected to reach 70% by 2050. If today the city contributes to climate change, one can imagine that in the future it could help to decrease the impact of human activities on the environment. Cities must evolve to cope with the effects of climate change, such as heat waves, stronger wind intensities and more intense rains.

To provide engineers with the skills and knowledge needed to work in the field of urban planning, this option aims to analyse the energy and environmental issues associated with the organization of urban agglomerations, in the context of a climate and a rapidly changing environment.

Semester

S09

Programme

Learning Outcomes

Employment Sectors

Construction or Public Works companies, Technical services of local communities, Environmental Consulting

Requirements

MOD mandator: "Climate change"

MOS mandatory: "Atmospheric Pollution"

Assesment

Option Website

Additional Information

**CLIMATOLOGIE URBAINE****QUALITY AND WATER TREATMENT****Lecturers:** Pietro SALIZZONI

| Lecturers : 15 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 10 | Project : 0.0 | Language : MI

Objectives

The density of buildings and the construction materials used deeply alter the exchange of heat, humidity and momentum in the urban canopy, compared to a rural environment. These modifications induce very specific thermal and microclimatic conditions, which can in turn have a profound influence on the comfort of life. This module presents the issues associated with building architecture and urban planning to minimise the climate impact of urban areas, minimise the energy consumption of buildings and maximise the comfort of urban spaces.

Keywords :**Programme**

Thermal comfort of urban spaces CM 11h + BE 6h
Natural ventilation of buildings: CM 4h + BE 4h
(4h CMs are shared with the HD Stream - Air Renewal)

**Learning
outcomes****Independent study****Objectifs :****Méthodes :****Core texts****Assessment**



RÉGÉNÉRATION ET RÉSILIENCE URBAINE

GEOGRAPHIC INFORMATION SYSTEM / CLIMATE CHANGE

Lecturers:

| Lecturers : 17 | TC : 0.0 | PW : 0.0 | Autonomy : 0.0 | Study : 8.0 | Project : 0.0 | Language : MI

Objectives

Conditional on the approval of the CE

Provide an overview of the issues associated with the transformation, conversion and regeneration of urban spaces to take account of the challenges arising from climate change and the need for sustainable development.

Keywords :

Programme

Urban hydrology CM 8h + BE 4h

Soil depollution and reclamation CM4h + BE4h

The political, sociological and economic issues involved in urban regeneration CM 5h

Learning outcomes

Independent study

Objectifs :

Méthodes :

Core texts

Assessment

Written exam: 50%
Project reports: 50%



PROJET TET

SOIL POLLUTION

Lecturers: Eric VINCENS, Pietro SALIZZONI

| Lecturers : 16.0 | TC : 0.0 | PW : 4.0 | Autonomy : 0.0 | Study : 4.0 | Project : 0.0 | Language : FR

Objectives

Keywords :

Programme

Learning outcomes

Independent study

Objectifs :

Méthodes :

Core texts

Assessment