Blended Intensive Program
Monitoring Clean Energy in the EULiST Campuses

The EULiST waiting for the evaluation!

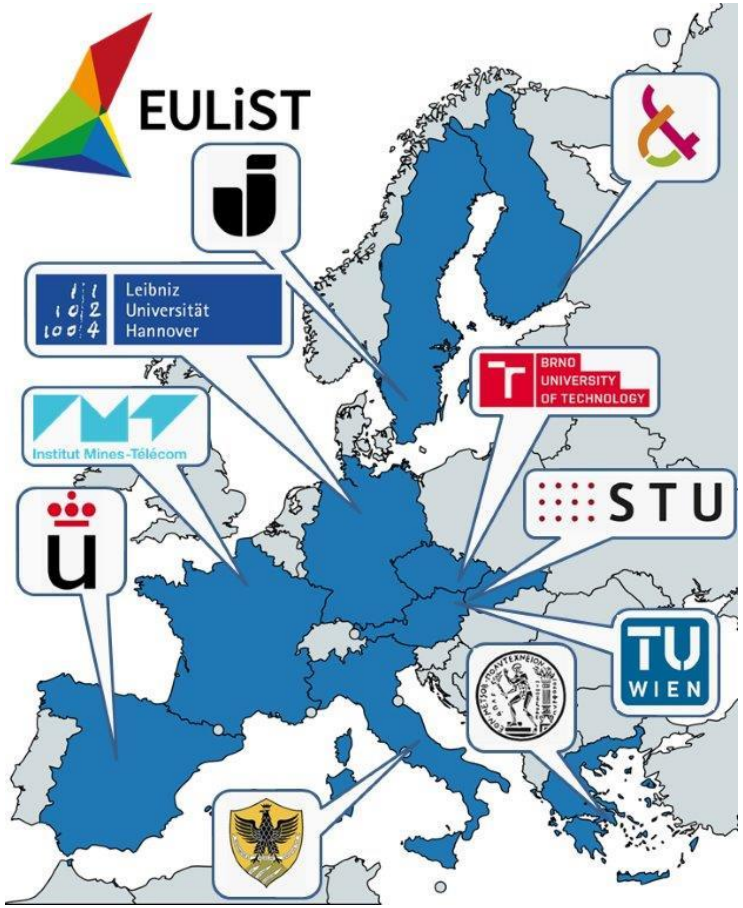
WP 4:
EUList Research and Innovation
Sotirios Karellas (NTUA)

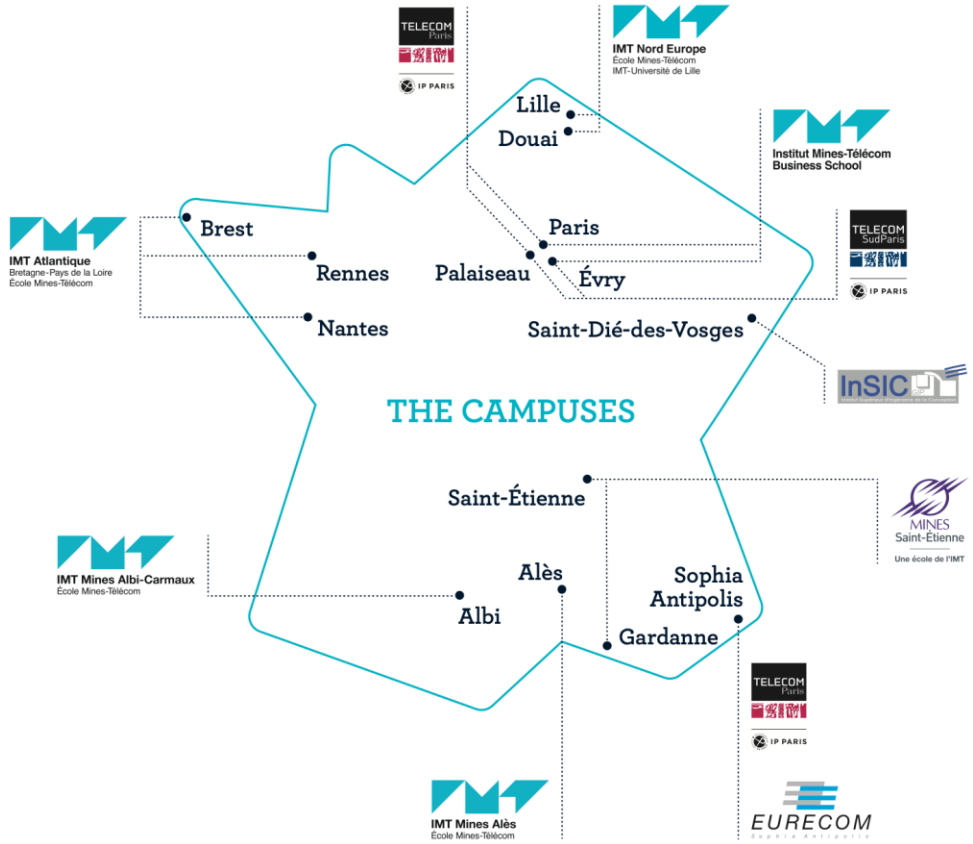
Green campuses: Best practices in France

EULIST

Ingrid Bazin, IMT Mines Alès

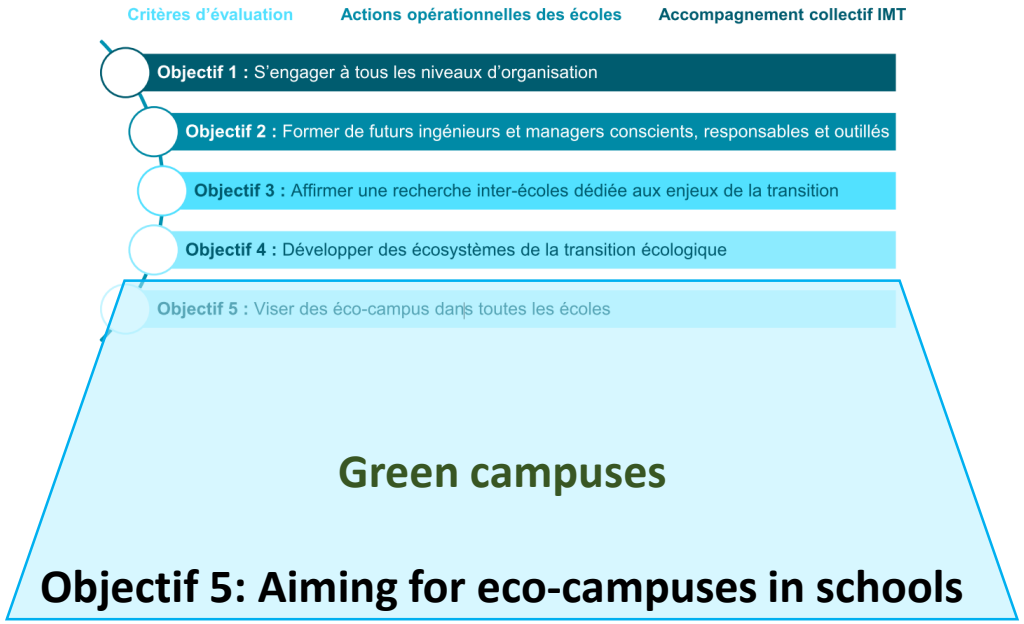
- **IMT: A group of 10 schools**





IMT Strategy

IMT "ecological transition" roadmap *(2021)*



Reduction in greenhouse gas emissions by 3

Reducing environmental footprint , increasing biodiversity, deploying an energy efficiency plan

Travel policy to reduce greenhouse gas emissions

Responsible purchasing and digital policies.

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- Modernizing spaces to make campuses inspiring and Meeting the need for densification by transforming space

- Quality of life / well-being and attractiveness of the campus

Campuses for the futur

- Reducing the environmental footprint
  - Reducing and controlling energy consumption
  - Reducing the use of fossil fuels in favour of renewable energies

- Sustainable mobility

- Reducing the environmental footprint
  - Reintroduction of biodiversity
  - Managing water and green spaces

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RÉPUBLIQUE FRANÇAISE

2 Examples: IMT Nord Europe, IMT Mines Alès

3- fold reduction annual energy consumption in buildings

5-fold reduction in greenhouse gas emissions

94% of heating needs covered by geothermal energy

5% reduction in greenhouse gas emissions

20% reduction in fossil fuel consumption

50% reduction in water consumption

Eliminate consumption

Reduce consumption

Optimise consumption

Eco-Campuses: Campuses in the city

Evolution of campuses to control energy expenditure and optimize its use

Eco-Campus IMT Mines Alès

Before

forty thousand square metres of surface area

Eco-Campus IMT Mines Alès The project

Vidéo: Campuses of IMT Alès

Eco-Campus IMT Nord Europe

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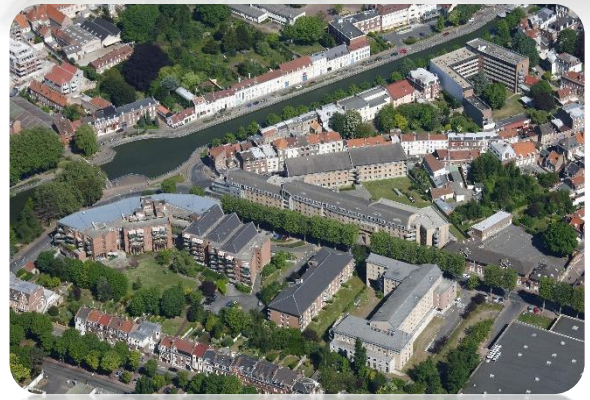
Campus Lahure (23 200 m²)

Campus Villeneuve d'Ascq (9 000 m²)

4 Campuses

(Building heritage~72 000 m²)

Campus Bourseul (17 500 m²)



Campus Maison des élèves (22 300 m²)

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Before

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Creating a landscape identity by bringing urban nature back to the campus

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Sustainable mobility

A way to eliminate the use of fossil fuels

Sustainable mobility

200 euros/year allowance for those who come by bike

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Sustainable mobility

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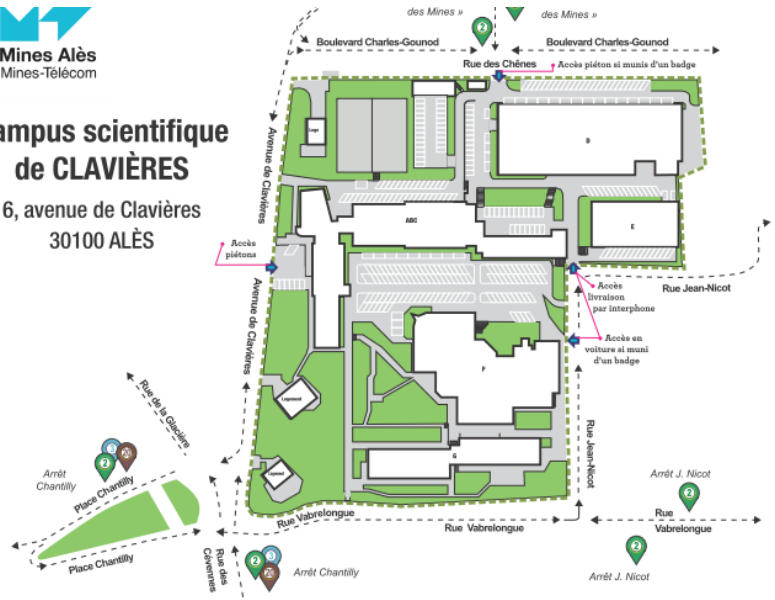
Campus scientifique de CLAVIÈRES

6, avenue de Clavières
30100 ALÈS



Travel plan

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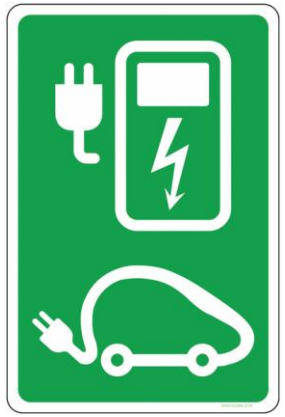
Sustainable mobility

Electric and hybrid vehicles (9% of the fleet)
Objective to reduce the fleet in favour of rail and carpooling

nearby recharging station



Carpooling : Students who car-pool have access to the car park
Future travel policy

Encouraging teleworking and rationalising workspaces

Business travel;
Videoconferencing

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Developing the use of electric vehicles (4 x 22kw recharging stations - 30% of spaces electrified)

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Reducing and controlling energy consumption

Energy sobriety plan

In 2022, against a backdrop of accelerating climate change and the war in Ukraine, France decided on an energy sobriety plan. Our country must move away from its dependence on fossil fuels and reduce its energy consumption by 40% by 2050 to achieve carbon neutrality.

IMT has drawn up an energy saving plan

The upper limits for heating temperatures are set on average at 19°C (winter) et 26° Summer

Raising awareness of Eco-gestures in everyday life

Monitoring: periodic analysis of energy consumption

Major investment in energy-efficient building renovation

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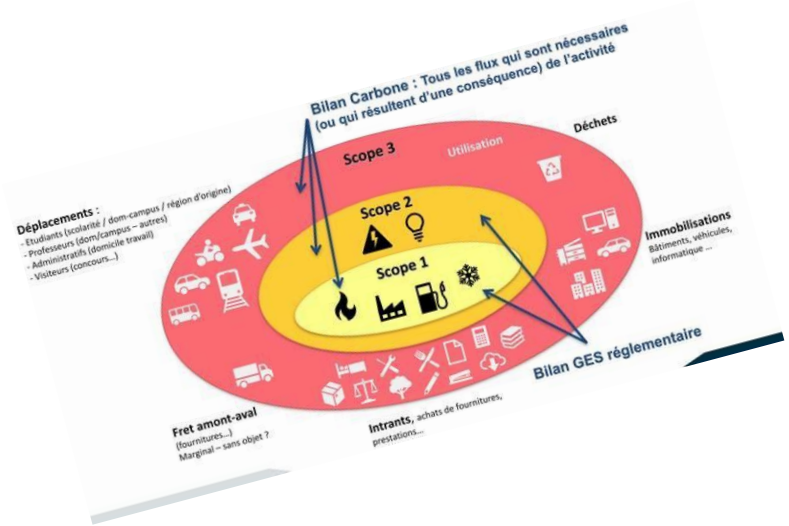
Reducing energy consumption



TOVALU
Votre solution de pilotage Climat & RSE

carbone 4

Reducing carbon foot print

Mobile solar protections

Protections mobiles pilotables (stores intérieurs) :

Relamping project (replacement of lighting) every year 8 to 10 euros/year

Installation of insulating panels behind the radiators (saving of 1°C/room)

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Controlling energy consumption

Optimising campus control: centralized technical management (CTM) and building management systems (BMS)

CTM: controlling heating, air conditioning and ventilation (HVAC) operations. Computer control with a tool that manages the mode (e.g. night, weekend, frost-free...)

BMS: control building regulation operations: lighting, putting electrical appliances on standby when not in use.

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- **Elimination of 3 oil-fired boilers, each with a capacity of 533 kW** (consumption of 100,000 litres/year)
- **Insulation (inside and out) and ventilation work on the site's 3 main buildings** (Laplace, Newton, Gay-Lussac), **with modifications to the main façades.**

Buildings constructed between 1954 and 1971

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- Low floor insulation and insulation for heating networks - Bourseul site (Laplace, Gay-Lussac and Newton buildings)

4 km of insulation

2,500 m² of floor insulation

Insulation (out)

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Insulation (inside)

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Climat adaptation, water managment and biodiversity protection

A way for reducing energy consumption

Biodiversity protection and climat adaptation

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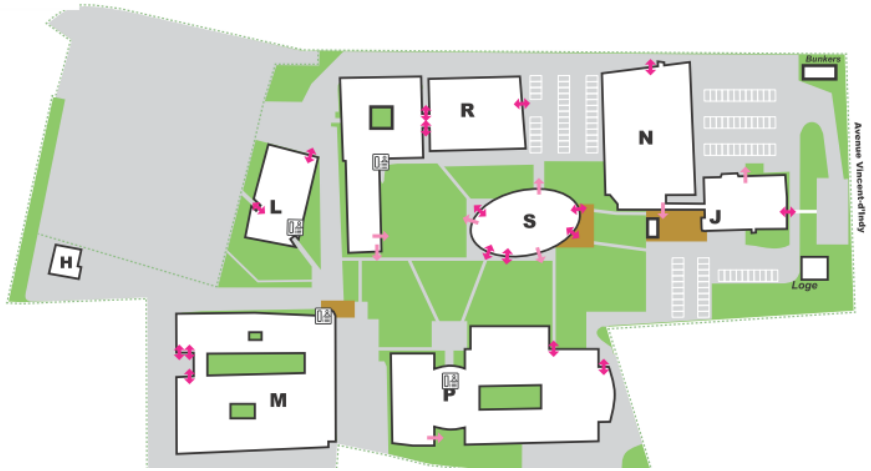
Campus scientifique Louis Leprince-Ringuet
7 rue Jules-Renard - 30100 ALÈS



35 % green space?

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Biodiversity protection and climat adaptation

100% natural species, adapted to the Mediterranean climate.
rational mowing
flower meadow
Insects hotel to encourage biodiversity

Drainage and renaturation of soils

Infiltration of all **road and roof water**

Reintroducing nature to the city

Creating an ecological corridor
(Canal Scarpe)

Water managment

no watering

Under Croupillac there is a groundwater table: there are two retention basins (200 M3) which prevent flooding of the sites (effects of the Cévennes).

New project: removal of the central car park at Clavière (ITM is encouraging work to make car parks more permeable) with shaded areas, and creation of areas of green space and relaxation.

Outdoor furniture produced in a short circuit: manufacture of outdoor wooden tables by the ESAT (Etablissement et service d'aide par le travail).

Water managment

55% of impermeable surfaces removed
Approximately 20,000 m3 of water per year (~8 Olympic swimming pools) is reinfiltrated into the water table

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Optimizing energy consumption

Reducing the use of fossil fuels in favour of renewable energies

Domestic hot water supplied by solar hot water tank (winter supplemented by electricity if necessary)
Air-to-water and air-to-air heat pumps (for heating and air conditioning)
Replacement of the 2 gas boilers with biomass (wood) boilers

Controlling energy consumption

Optimising campus control: centralized technical management (CTM) and building management systems (BMS)
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BMS: control building regulation operations: lighting, putting electrical appliances on standby when not in use.

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FRANCE RELANCE

- **Implementation of a geothermal heating system using groundwater (**3 heat pumps with a unit capacity of 135 kW - Gas backup & back-up)

Buildings constructed between 1954 and 1971

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Geothermal installation operational since 01/10/2021

Winner of the Trophées francophones des campus responsables "Climate Action 2030" award

EGEE Développement

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Nord-Forage

cdc INGÉNIERIE & CONSEIL

Santerne Fluides

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Campus quality of life, well-being

Creation of a 250 m2 multi-purpose teaching area

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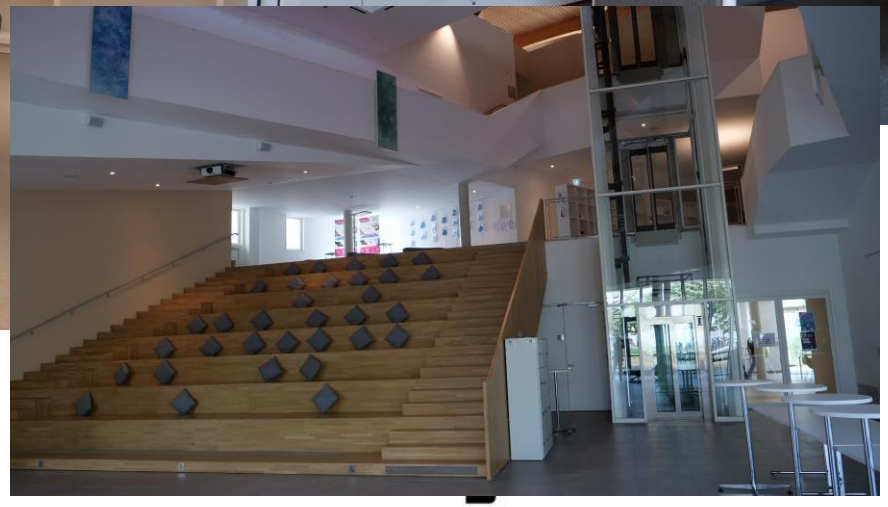

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Conclusions

Eliminate consumption

Sustainable mobility

teleworking
rationalising workspaces

travel policy

Reduce consumption

insulating

Relamping

indirect means of reduction (green space, water...)

Optimise consumption

renewable energies

tools to control use

Informations for carbon footprint

https://www.business-plan-excel.fr/calcul-empreinte-carbone-entreprise-excel/

https://www.climfoot-project.eu/en/bilan-carbone%C2%AE-clim%E2%80%99foot-tool

https://abc-transitionbascarbone.fr/

https://abc-transitionbascarbone.fr/agir/focus-sur-le-bilan-carbone-plus/ on this linke you have a demo version ;

Format: software
Source of emissions factors : Base Carbone®
Operating system required = WINDOWS
Access: free of charge
Period of validity: 30 days
Data export: no

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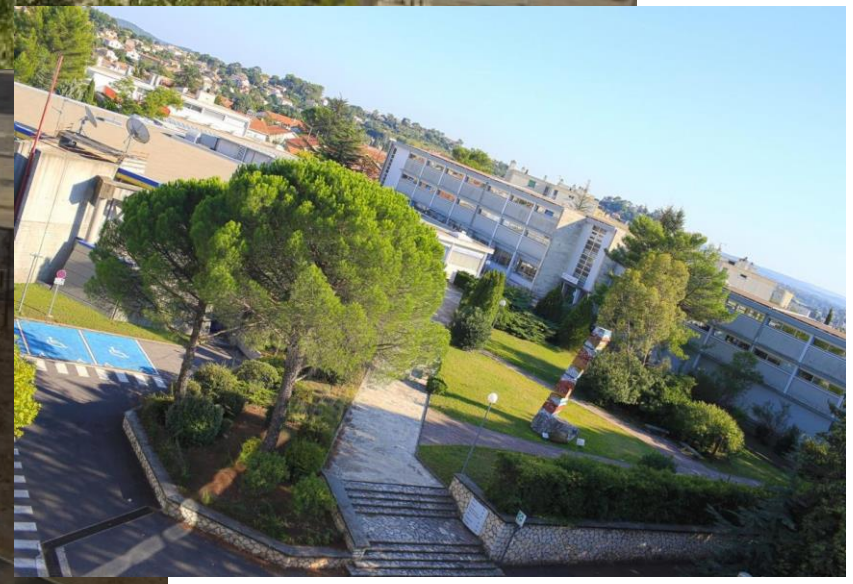
40000 M^2 total

Eco-Campus IMT Mines Alès



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