



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

VIRTUAL FAIR 2024

MASTER'S

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**Second cycle degree in
Building Engineering - Architecture**

The programme

Ingegneria Edile- Architettura

Un percorso di studi innovativo per affrontare i temi più attuali nell'area UE come il cambiamento climatico, l'integrazione culturale, la conservazione dell'identità urbana, l'economia circolare.



SEDE
Bologna



CLASSE DI CORSO
LM-4 – Architettura e Ingegneria Edile-Architettura



TIPO DI CORSO
Laurea Magistrale

<https://corsi.unibo.it/magistrale/IngegneriaEdileArchitettura>

Architectural Engineering

An innovative and multidisciplinary training to plan and manage all aspects of buildings in the context of building renovation, new construction and urban regeneration.



PLACE OF TEACHING
Bologna



DEGREE PROGRAMME CLASS
LM-4 – Architettura e Ingegneria Edile-Architettura



DEGREE TYPE
Master's degree

<https://corsi.unibo.it/2cycle/ArchitectureEngineering>



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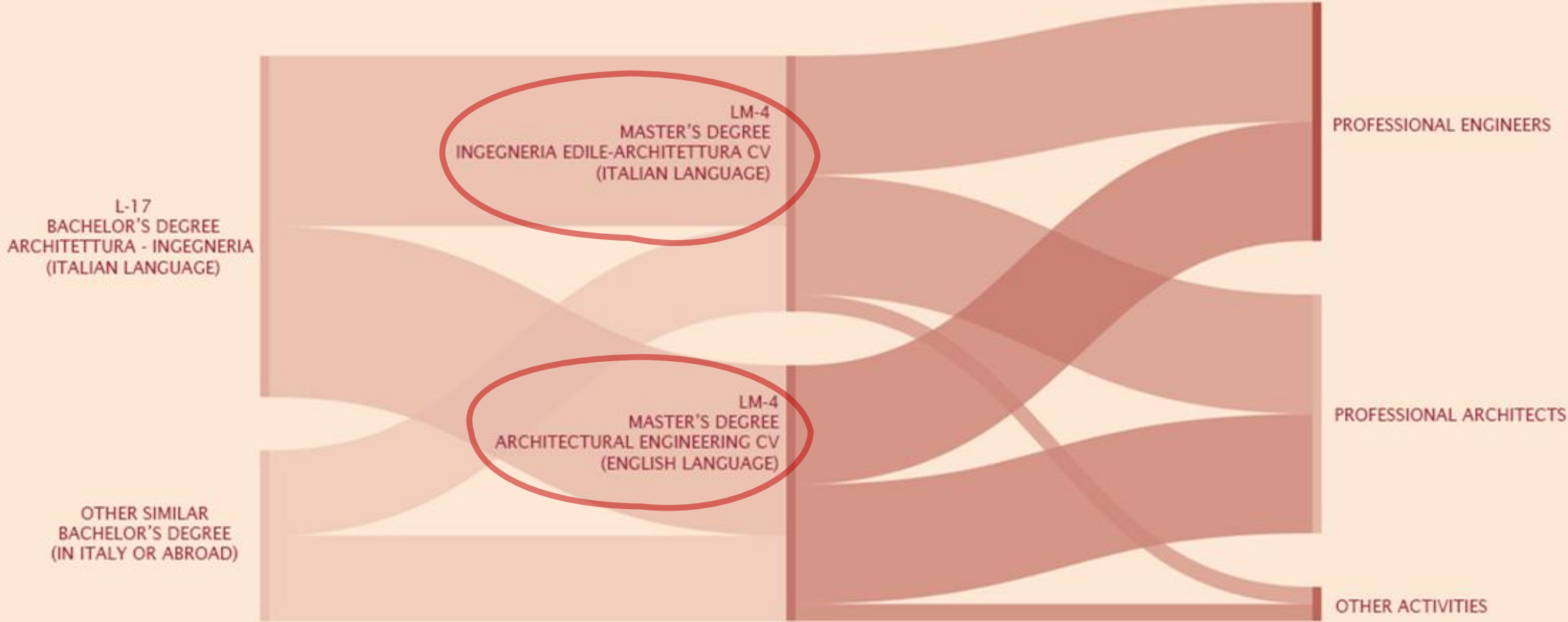


DEGREE TYPE
Master's degree

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The training project



Highlights

The degree course is aimed at future **Building Engineers-Architects** who wish to undertake an innovative and multidisciplinary training allowing them to **plan and manage all aspects of buildings** in the context of **building renovation, new construction** and **urban regeneration**, adopting a conscious approach to the **use of materials, technologies and energy sources**

KEYWORDS

Innovative strategies
Complex buildings
Urban context integration
Landscape design
Quality of life



Internazionalization



This is an **International Master degree**:

- It is completely taught in **English Language**
- It has an international approach to teaching
- It has a **global point of view of the Architecture and Engineering field**, thanks to the involvement of the professors in International and European projects
- It includes **students from all over the world**: attending this programme means studying in an International environment

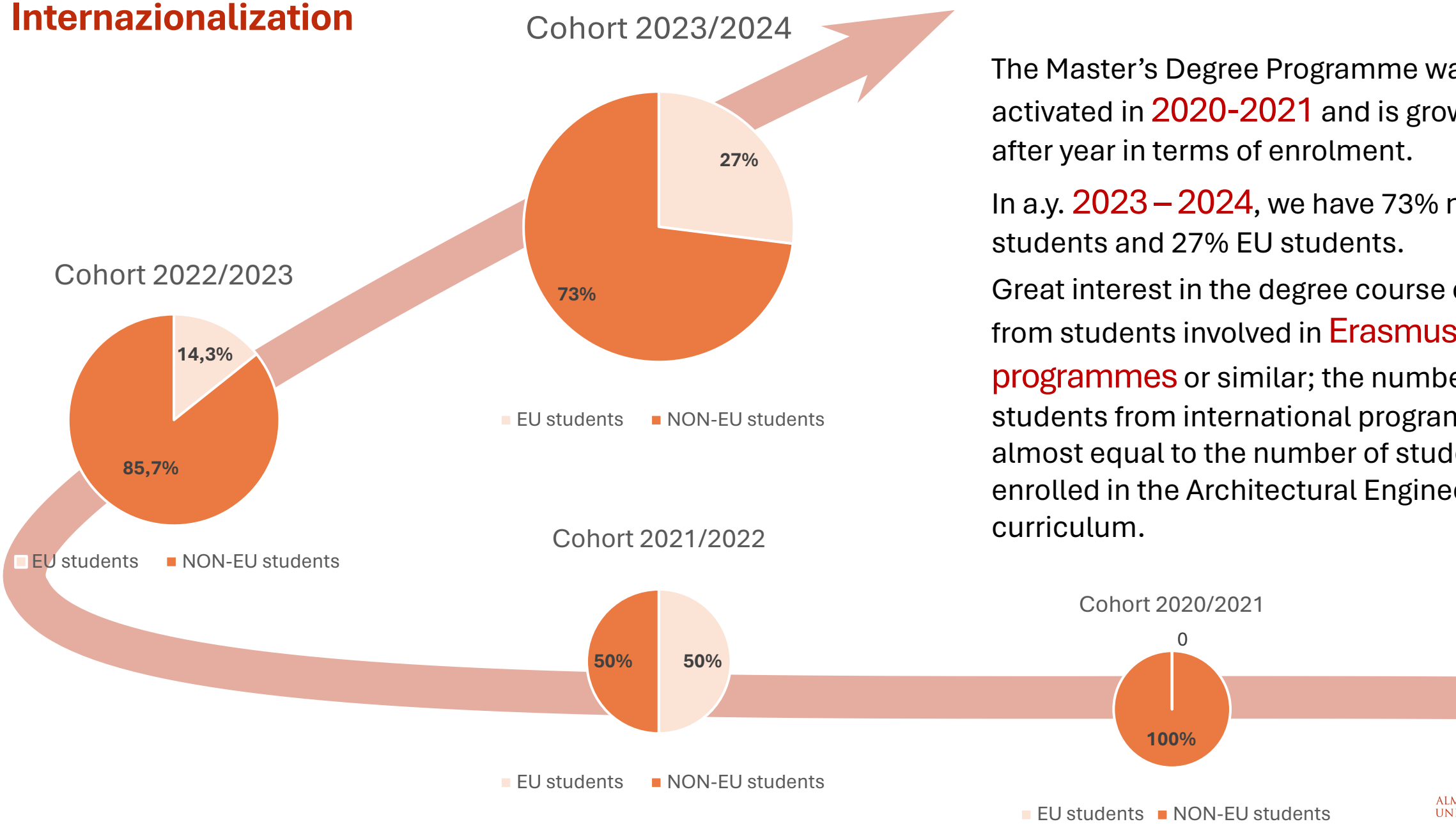
KEY POINT

European Acknowledgment of the title

Graduates will be allowed to work as Architects all over Europe



Internazionalizzazione



The Master's Degree Programme was first activated in **2020-2021** and is growing year after year in terms of enrolment.

In a.y. **2023 – 2024**, we have 73% non-EU students and 27% EU students.

Great interest in the degree course comes from students involved in **Erasmus + studio programmes** or similar; the number of students from international programmes was almost equal to the number of students enrolled in the Architectural Engineering curriculum.



Teaching activities

Students will deepen the knowledge in disciplinary areas related to both architecture and engineering.

Architecture area – architectural representation and design, history of architecture, restoration technique

Engineering area – structural analysis, building management, sustainable building design and Building Information Modeling

The programme is completed by insights on **urban economics** and **building cost analysis** and by the study of **urban planning and regeneration techniques** aiming at promoting sustainable, inclusive and healthy cities.



KEY FEATURES

Design workshops to prepare for teamwork.

Work placement, to prepare for the future career and professional challenges



Admission Procedures



Title required

Bachelor's degree in Architecture (**L-17, L-7, L-23** for Italian students) or similar;

In case of Italian Bachelor's degree, passing the **ARCHED test** is required;

Foreign titles will be evaluated by the admission board



Document requested and evaluated by the board

The training curriculum: exam grades and graduation mark, teaching program of the bachelor's degree;

Portfolio of works, including texts and iconographic material, documented internship or extracurricular work experience;

Fully documented internship or extra-curricular work experience;

Other certified and documented research or extracurricular training titles

English language skills: **at least B1 level**

The call for application is open!

Number of available places:
40 (30 reserved to NON-EU students)





The study plan

1st year

- Advanced Building Physics
- Built Heritage Workshop I.C. (*Heritage Conservation + Construction History*)
- Geomatics for Urban and Regional Analysis
- Sustainable Building Design Workshop I.C. (*Building Technologies + Building Design*)
- Sustainable Building Process Workshop I.C. (*Advanced Building Site + Cost Analysis*)
- Design Modeling Workshop I.C. (*Architectural Design I + Building Information Modeling*)
- Structural Engineering and Design
- Internship





The study plan 2nd year

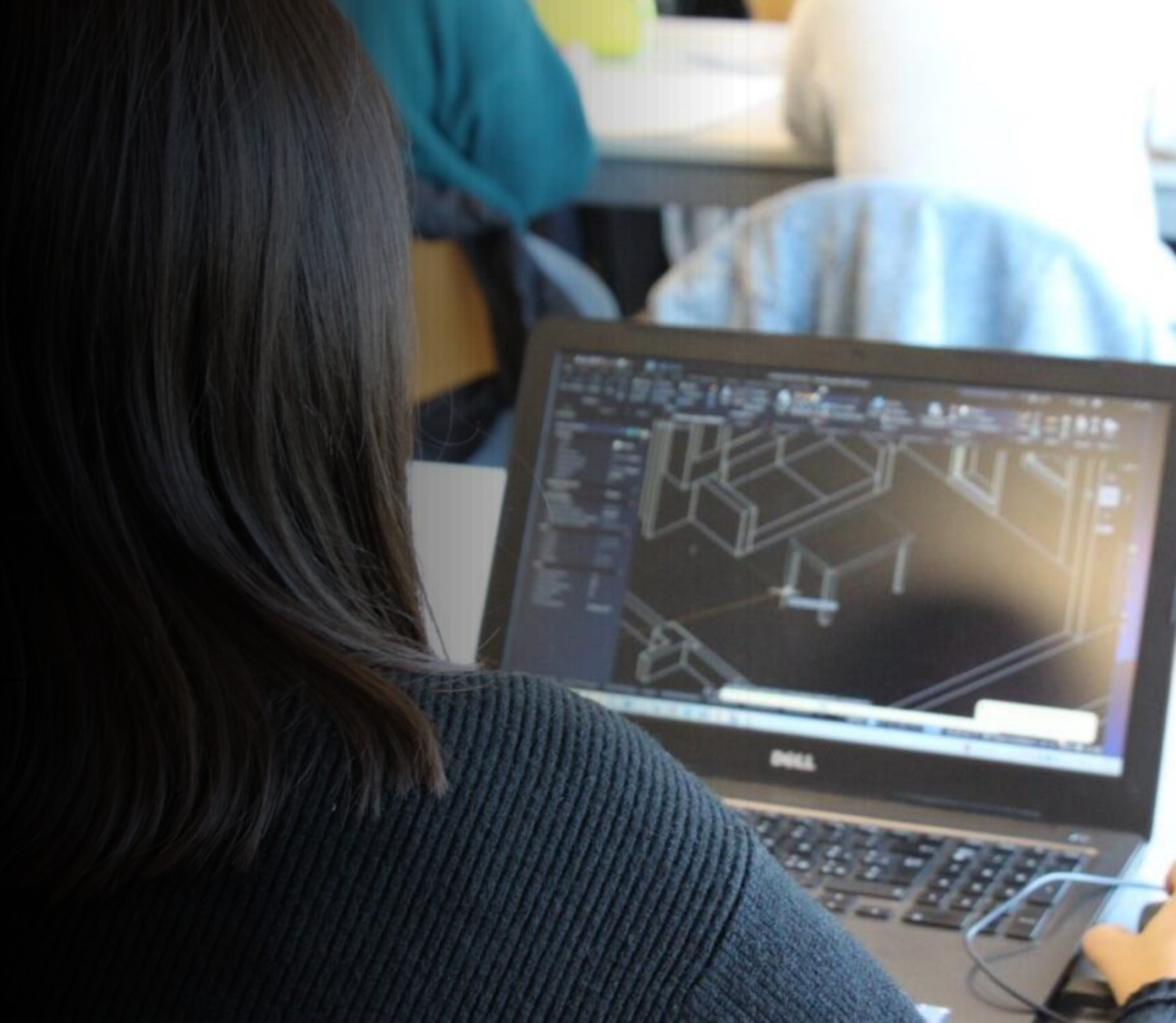
- Project Management Workshop I.C. (*Construction and Facility Management + Managing Engineering and Construction Processes*)
- Design Computing Workshop I.C. (*Architectural Design II + Building Information Modeling II*)
- Sustainable Urban Design and Planning Workshop I.C. (*Planning in a Changing Society + Planning in a Changing Climate*)
- Building Renovation Workshop I.C. (*Historic Building Techniques + Building Renovation Project*)
- English Language Test B-2
- Two Elective Courses*
- Final Examination

* ELECTIVE COURSES:

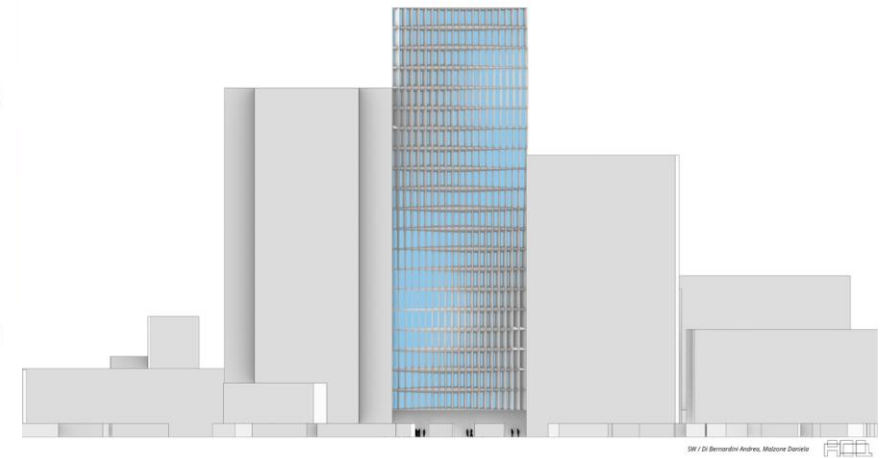
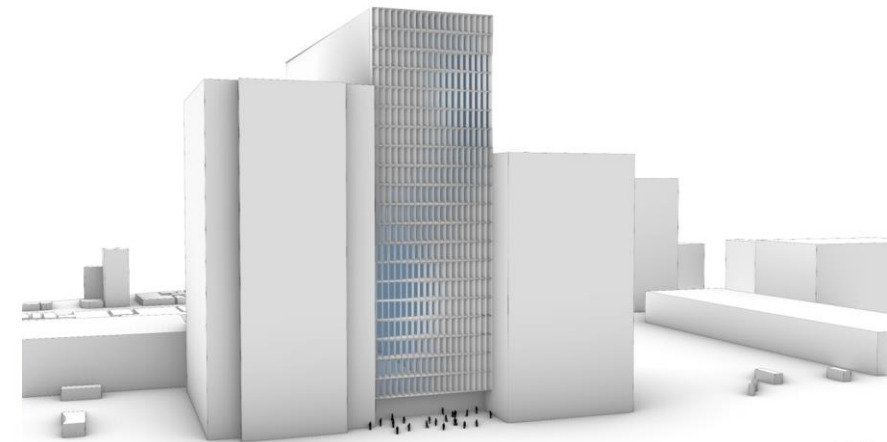
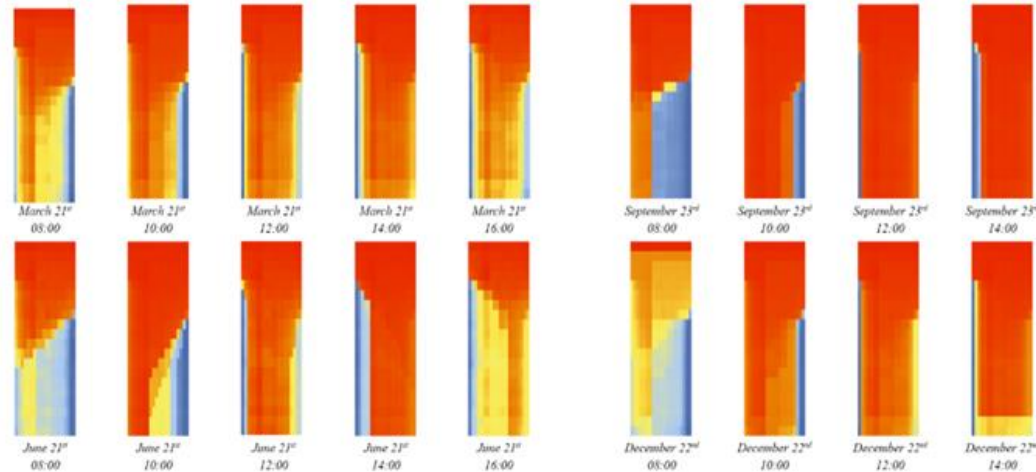
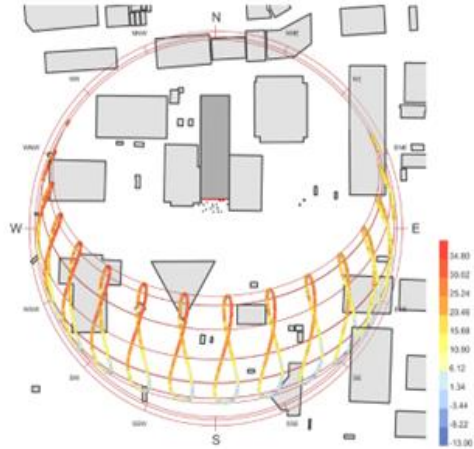
- Mechanics of Historical Masonry Structures
- Structural Strengthening & Rehabilitation
- Material and Sustainability
- Building Energy Modeling
- History and Cultural Heritage in European Cities



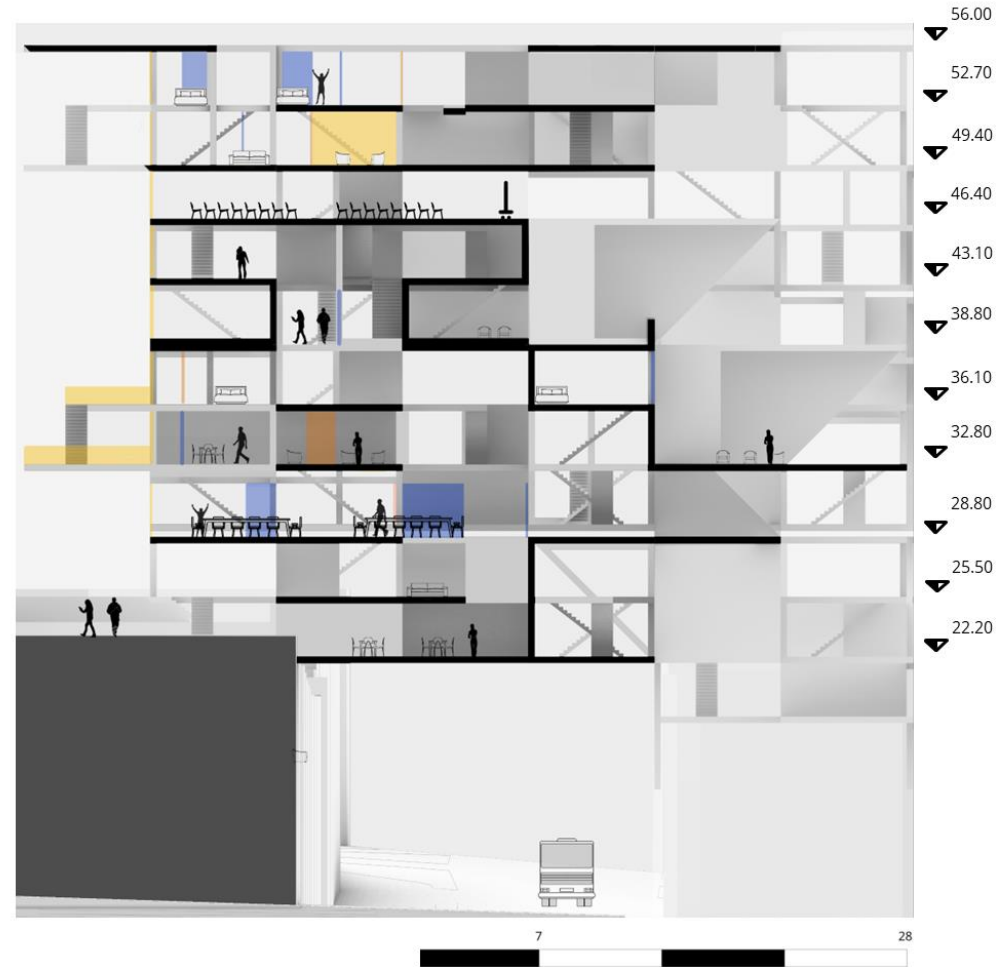
Teaching courses and design workshops



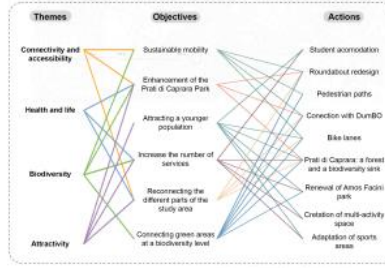
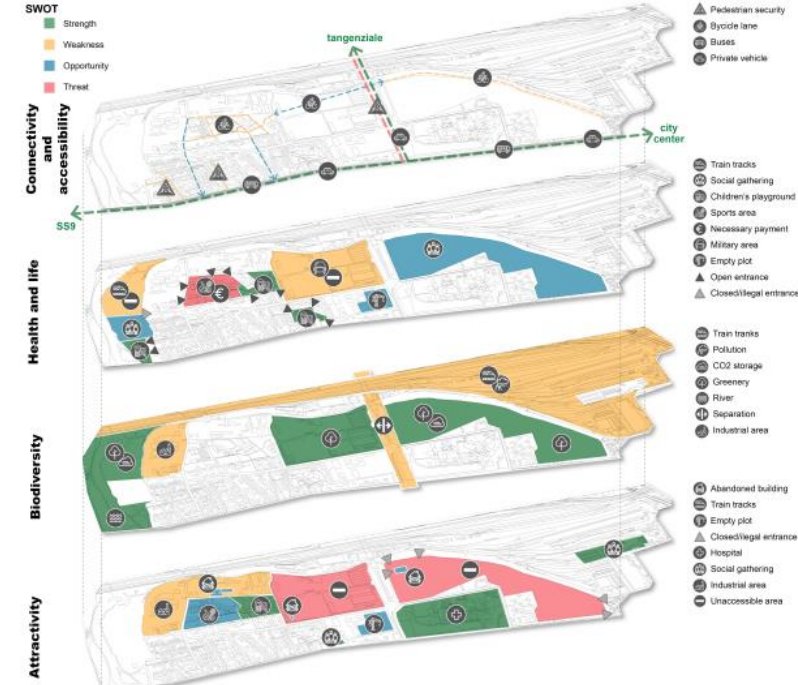
Design Modeling Workshop I.C. (Architectural Design I)



Design Modeling Workshop I.C. (Architectural Design I)



Sustainable Urban Design and Planning Workshop I.C.



Focus project 3: Prati di Caprara

For our third focus project, we open part of the Prati di Caprara park to the public, leaving it in its natural state.

To conserve the rich biodiversity of the area we will also use the abandoned structure to the northwest as a social meeting point.

The darkened area is the part we keep closed to the public as to conserve its rich fauna and flora diversity, based on the study of species we did in Phase 2.

Connection between projects

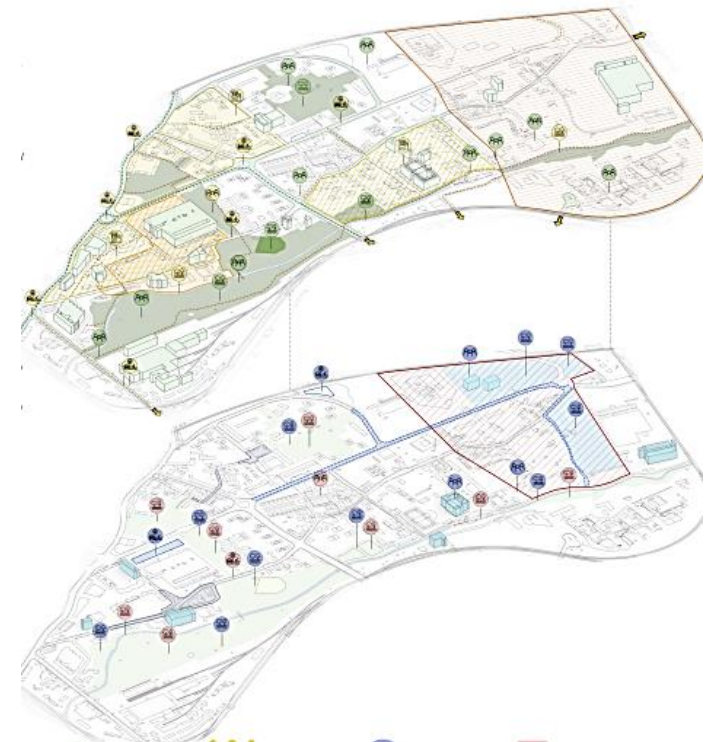


To guide people from one point to the other, we renewed the paths connecting our three focus projects.

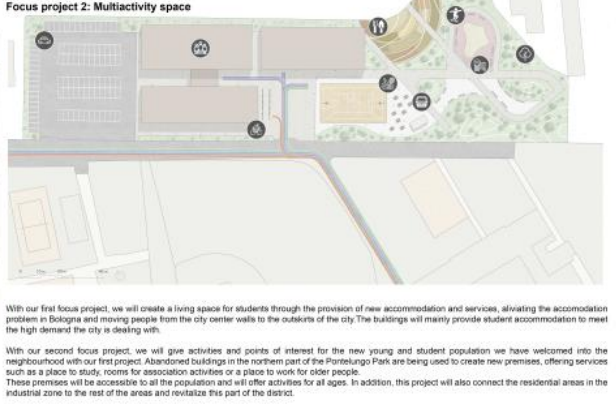
The roundabout in Via Prati di Caprara has been redesigned to provide a more direct access from the opened park to the student accommodation center.

We also used the walls across Via Paolo Nanni Costa, covering them with colored panels to create interest and attract people from the accommodation center to the Portofino Park, main point of access to the multiactivity space.

We also added colored lines on the floor to guide people depending on the interest: orange following the bicycle lane, green to the green spaces, blue to areas with activities and purple to areas of reunion.

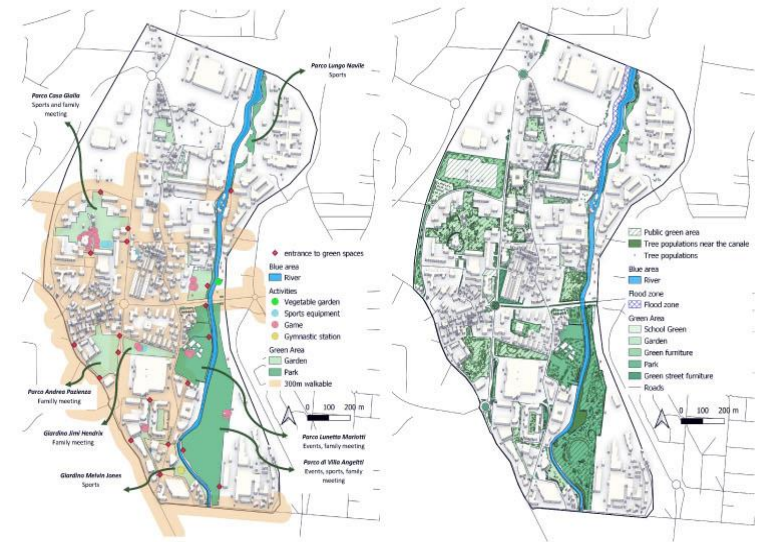


S	W	O	T
Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> High quality green areas Presence of Urban Agriculture Regulating Ecosystem Services supply Recreational Ecosystem Services supply High Accessibility of Public Transport Planned Cycle Path High n° of Cultural Events Diversity of socio-demographic groups Potential for the installation of PV panels 	<ul style="list-style-type: none"> Lack of Green Areas Unaccessibility and Bad management of Naville Canal area Lack Recreational facilities Lack of Public Transport Lack of connections to the surrounding area Fragmented cycle path Unsafe Hybrid roads Traffic congestion Urban heat island High Co2 Emission 	<ul style="list-style-type: none"> Potential Area for a New Cycle Path Potential area for additional Bus Stop Potential area for Car Sharing Station New Recreational Activities New Cultural Events Potential Meeting points Abandoned Building Gentrification 	<ul style="list-style-type: none"> Increase of Urban Agriculture Tree Planting Increase the supply of Ecosystem Services Abandoned Area Noise pollution Abandonment or misuse of Sharing Mobility Increase of traffic Ageing of inhabitants



Sustainable Urban Design and Planning Workshop I.C.

Environment



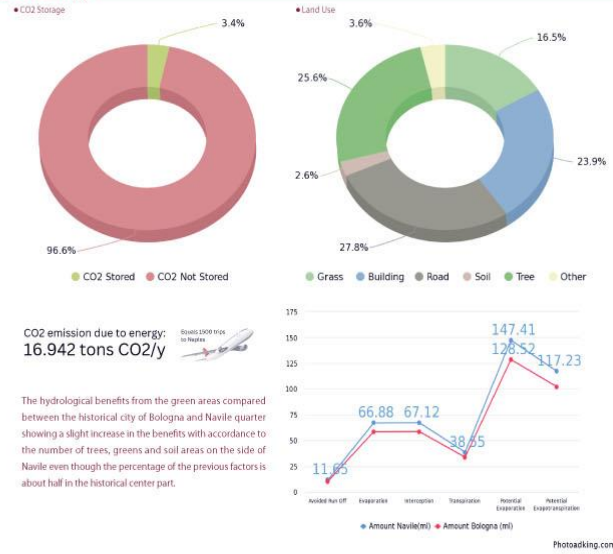
Green spaces occupy a large part of the neighborhood with a significant proportion of trees, which makes it a strength.

To the north of the Canale Navile an area is vulnerable to flooding and reaches the Industrial Heritage Museum. Populations living in the north have more difficulty accessing green spaces than the rest of the district, in fact the walking distance is longer.

All green spaces have many activities. Three parks are ideally located for families and sports enthusiasts: Parco Lunetta Mariotti, Parco di Villa Angeletti and Parco Casa Gialla. In these places you can find all the activities offered and especially games. Only one park, does not have any equipment: Parco Andrea Pazienza.

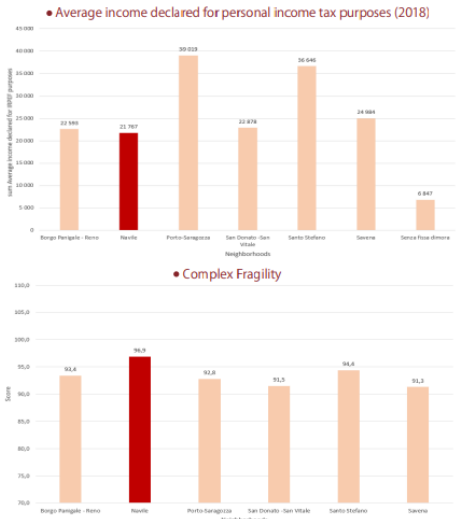
The activities are poorly distributed, the majority are located in the south of the district unlike in the north. Finally, in the Parco Casa Gialla and in the parks located to the east, some people do not feel safe, especially women at night, according to the Whar application.

Canopy



The hydrological benefits from the green areas compared between the historical city of Bologna and Navile quarter showing a slight increase in the benefits with accordance to the number of trees, greens and soil areas on the side of Navile even though the percentage of the previous factors is about half in the historical center part.

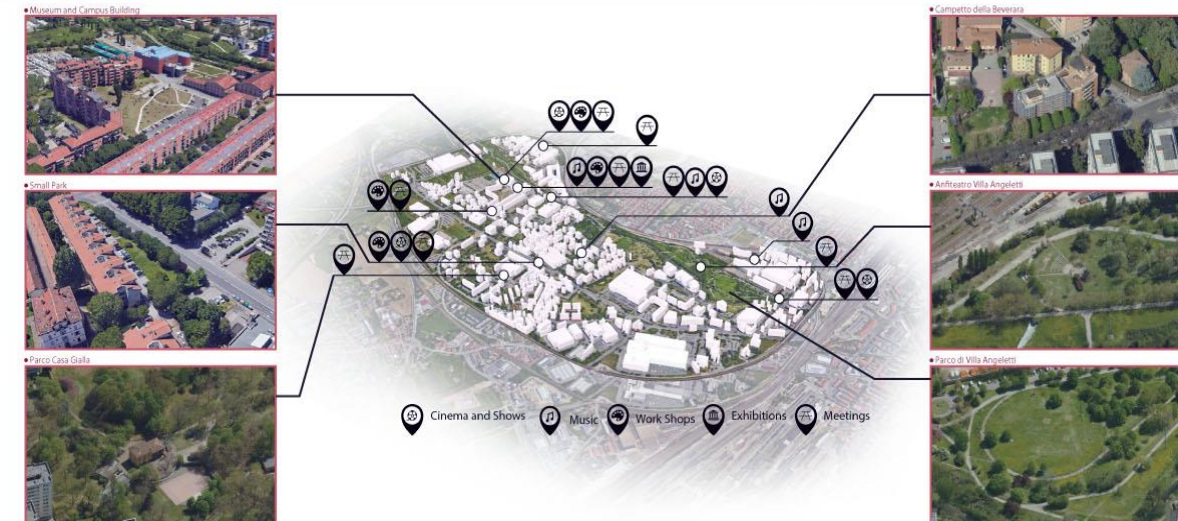
Social Issues



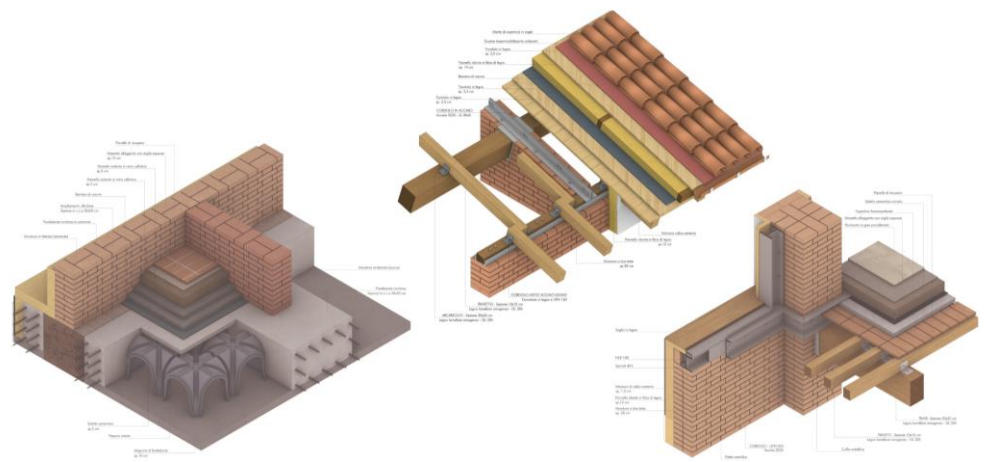
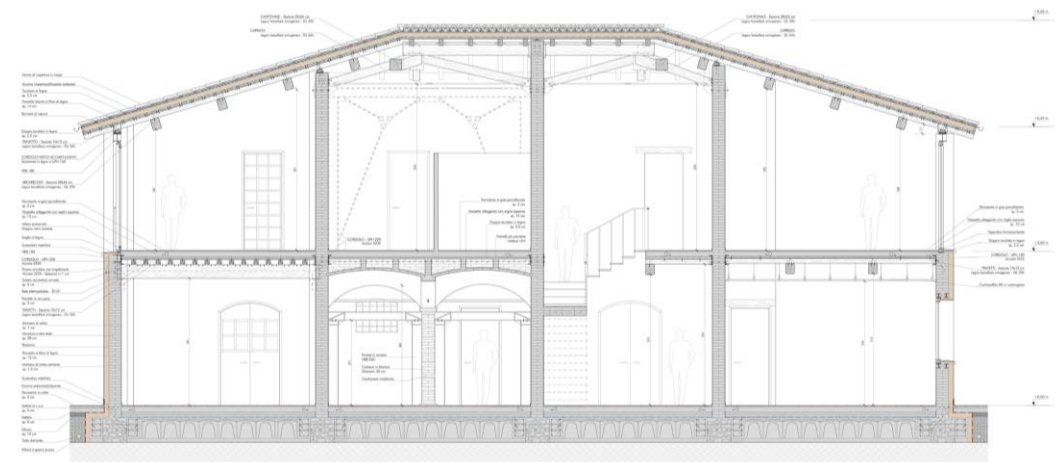
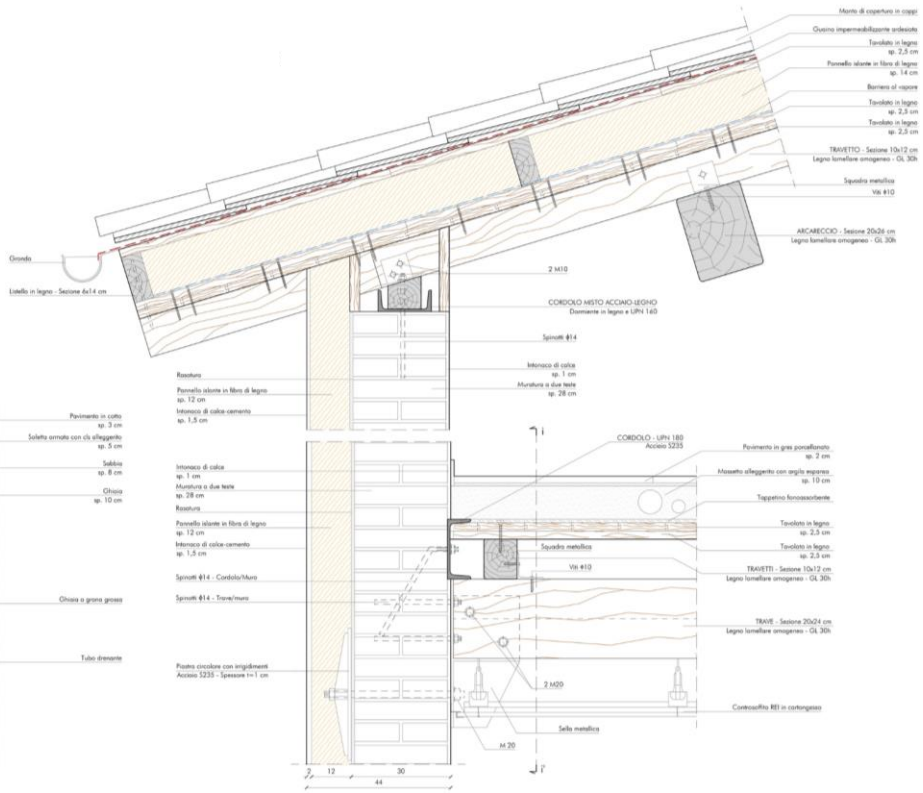
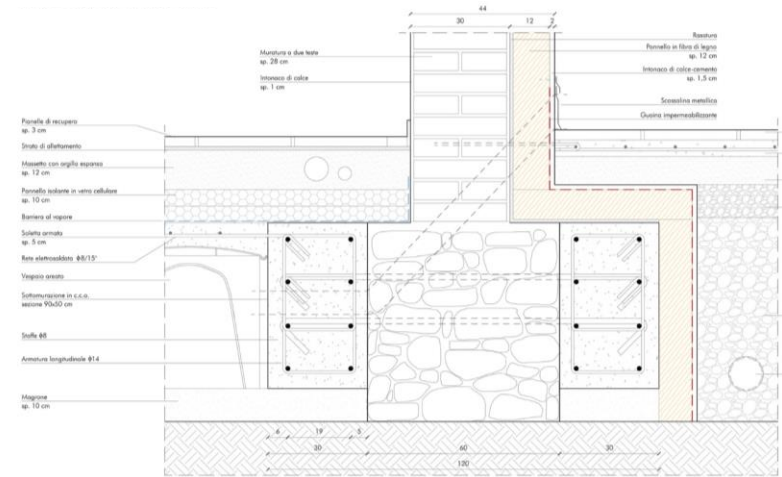
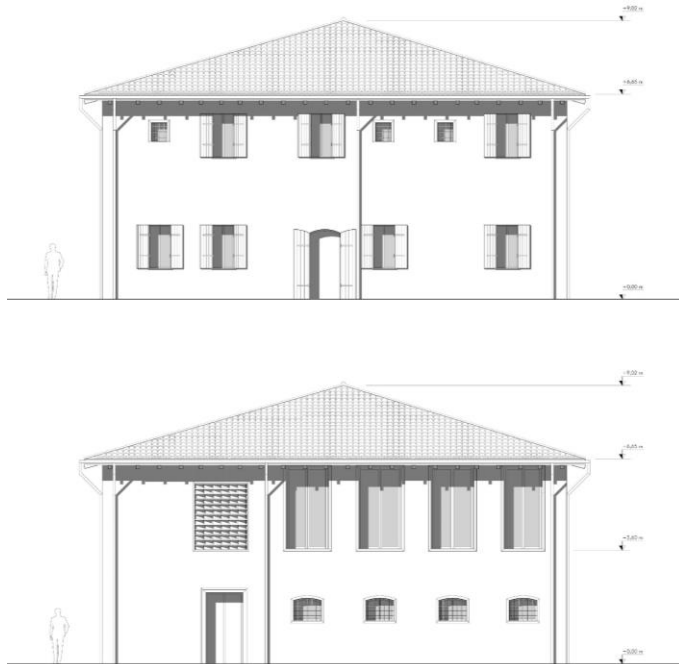
Complex fragility includes 3 indicators: demographic, social and economic. A score was assigned for each of the districts, varying between 70 and 130. For a score below 100, the area is considered to be weakly fragile. The Navile district is certainly below 100 but it remains the highest score of all the districts. Its economic and social fragility exceeds the score of 100. Indeed, neighborhood incomes are the lowest in the area.

The population density of Navile is slightly lower than that of Bologna: 2,800 inhabitants/km²

Environment



Building Renovation Workshop



Skills acquired



SUSTAINABLE DESIGN

Design new complex building systems and manage the re-qualification of existing ones through the integration of technological, systemic, and structural security components, with a specific focus on innovation, functional and social requirements, and the figurative, aesthetic and environmental aspects.



INNOVATION IN CONSTRUCTION

Know and apply innovative construction materials and components.



DIGITAL INNOVATION

Manage the advanced modelling and digital integration of processes with a particular focus on the integration of architectural requirements, construction methods, physical-environmental requirements and structural safety, also through the use of Building Information Modelling (BIM).

Skills acquired



MANAGEMENT OF THE BUILDING PROCESS

Deal with construction management, facility management, project management and asset management). Manage and coordinate the engineering phases and complex technical-administrative procedures, through advanced systems such as BIM.



PLANNING PROJECTS

Participate in interdisciplinary working groups on complex urban projects in terms of technical aspects, economic feasibility and environmental compatibility. Design and manage the urban regeneration of real estate in accordance with environmental and social sustainability, in pursuit of circular economy aims.



BUILDING RENOVATION

Recognise the historical and environmental features of the built heritage and deal with plans and designs to protect and enhance it. Analyse and evaluate the existing building heritage in all its aspects, including the restoration of buildings and within the limits permitted by the laws in force in Italy and in Europe.

Job prospects and career

Once licensed to practice as **Engineer or/and Architect** (both are possible in Italy – Architect in other EU Countries), registration to the section A - civil/environmental sector for the Engineers' Professional Board and section A for Architects' Professional Board is possible.

Some examples of professional activities are:

Engineer-architect designer of buildings, plants and structural systems and components,

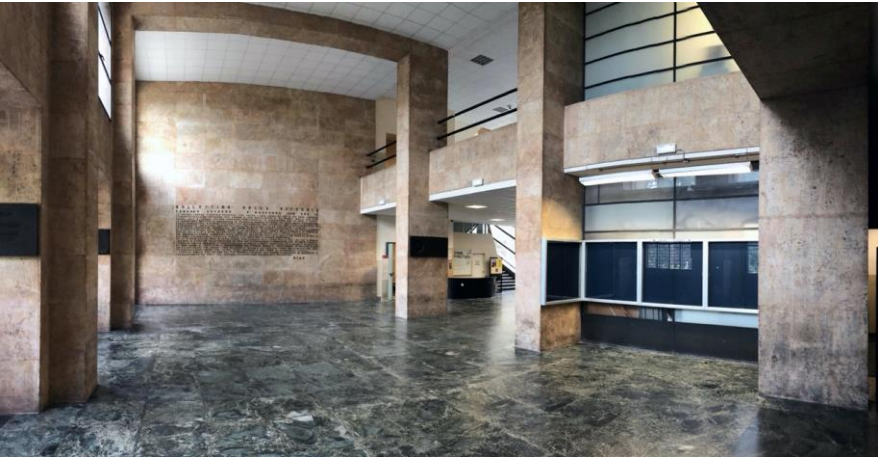
Engineer-architect with the role of project manager/design manager/facility manager,

Engineer-architect process manager in the public administration departments: urban planning – building – public works – environment – heritage, etc.





Teaching sites



The historic complex where laboratories, classrooms, areas for students, researchers and teachers are is in **Bologna** at **Viale Risorgimento 2**, in the Saragozza district.



The building is important evidence of Twentieth-century Italian architecture, designed by the architect Giuseppe Vaccaro in 1928 and inaugurated in 1935.





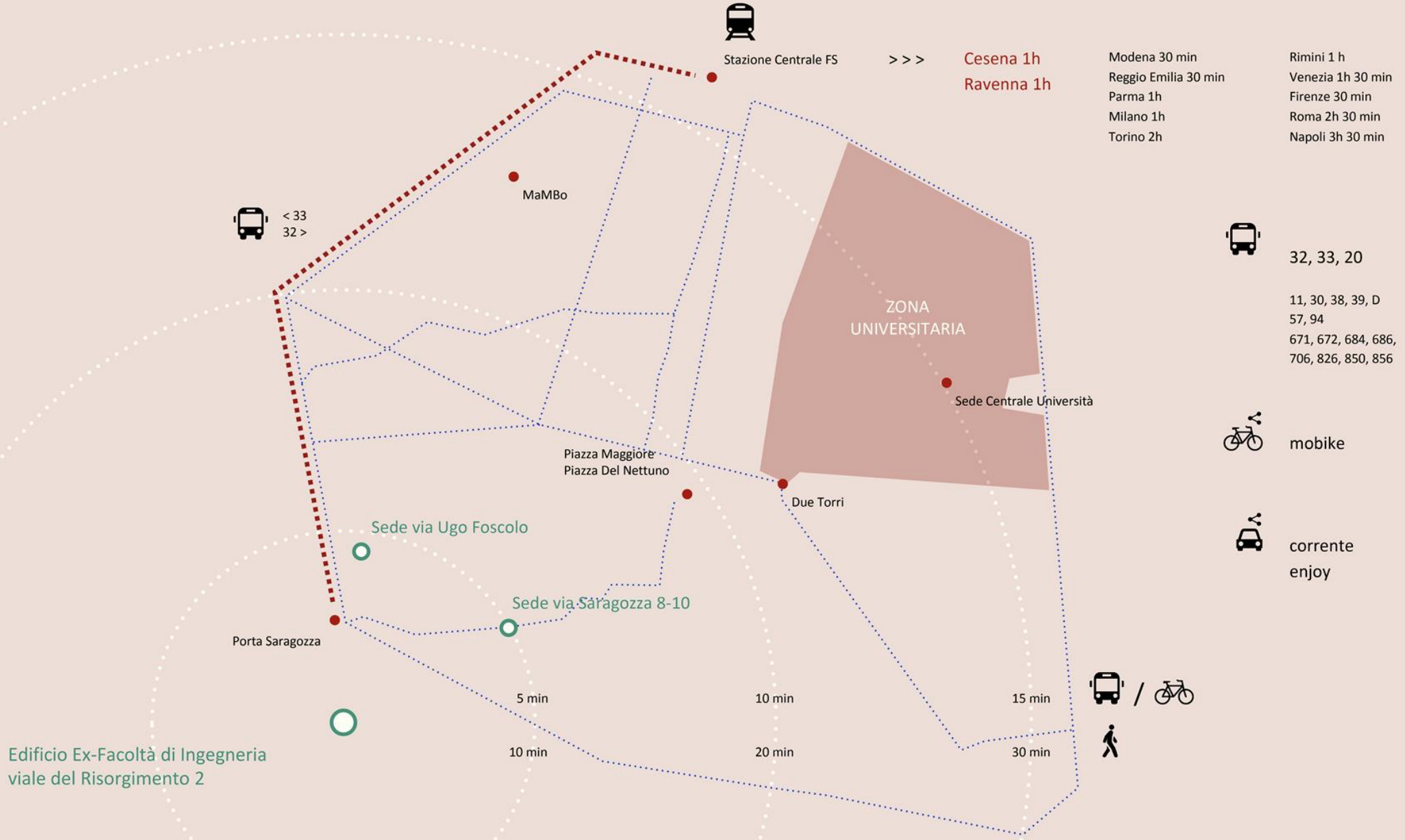
Teaching sites



Other classrooms and workshops rooms are located in another historical building, in **via Foscolo**, just a few minutes' walk from the main building, designed and built at the beginning of the Twentieth century.



Teaching sites





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