CENEAST

Reformation of the Curricula on Built Environment in the Eastern Neighbouring Area

Market Need Analysis for Built Environment Higher Education

By:
University of Bologna, Italy
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Tempus

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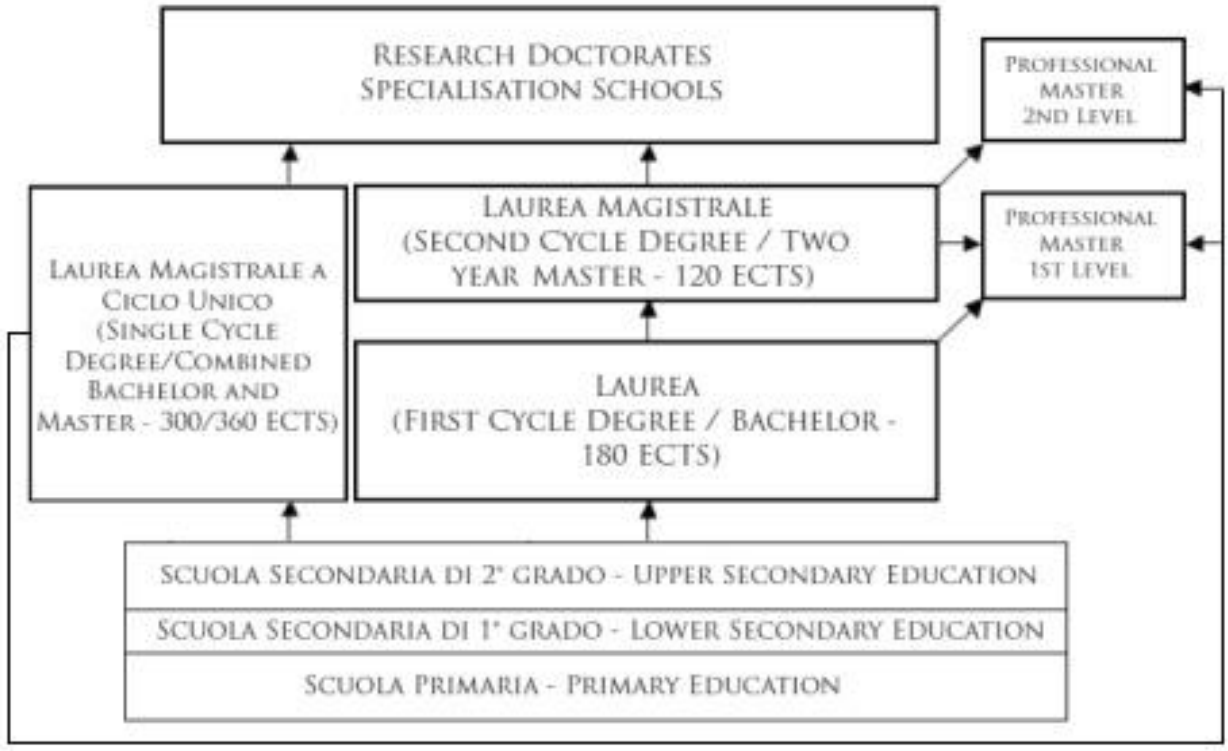
1. The Italian case.

Almost till now he Built Environment subject, in Bsc Specialists Msc and PHD programmes is not diffused and particularly structured in Italian Universities. Although an indubitable orientation to multidisplinary approach and to the renewal of courses in Engineering, Architecture and Management Faculties or Schools, it prevails in teaching programmes a huge specialization mainly oriented to traditional courses like (University of Bologna) Civil Engineering (Msc 120 ECTS) , Architectural and Urban Composition (2nd Cycle Course 4 ECTS) , City Management (Professional 1st Level Master 60 Ects) within the general study framework (Fig 1).



Particularly the subject is distributed in a variety of initiatives in Former Faculties (Now substituted by Schools with the main scientific responsibility in charge on Departments).

2. The University of Bologna.

As the restructuring of the University of Bologna Organization is still in progress we maintain the previous framework based on Faculties just to explain the situation (Fig. 2) and as a result of a survey comparing CENEAST proposals, mainly based on UK Universities experiences and UNIBO modules still undertook. The CENEAST prop are considered as the offer and UNIBO modules as an expression of the demand (see the point 7).

	School of Engineering >>>	and Architecture	School of Economics, Management and Statistics	School of Information Sciences	School of Biology
Bsc	Engineering for Environment and Territory (150 Ects)				
Msc	International Master Course in Civil Engineering (120 ECTS)	Health and Environmental Engineering (Course 6th Credits)			
PHD					
1st Lev.P.Master			Master in City Management		
2nd Lev.P.Master					
Interdepartimental					Inter departimental Research Center on Environmental Sciences.

The most similar to Built Environment teaching could be detected in Laboratory or Research Centers that, having more autonomy in the University Structure and in the Recruitment of Teachers and External Experts, could be more near and attentive to needs of market as it concerns Professionals and Competencies.

3. The Laboratory for Research on the City.

An example could be the Laboratory for Research on the City.

The Laboratory analyses the transformations of the contemporary city from an interdisciplinary point of view.

The laboratory was founded by Professor Giovanna Franci in 2008 with the objective of creating a research center for a set of ample and complex reflections on urban life. These

reflections are accompanied by the critical description and analysis of the transformations of the contemporary city from an interdisciplinary point of view. The activities of the laboratory include both academic and non-academic research. In-depth examination of the issues raised takes place by means of conventions, seminars and various other events.

The laboratory contributes to the improvement of the quality of urban life and works toward sustainable development in cities.

The laboratory describes records and formulates critical analyses of some of the world's metropolitan situations and examines their modes of evolution through history. These changes are not only registered in the realm of architectural forms, but also in the new forms of citizenship that arise with respect to modifications in the social components of the city, and in the mobility of its citizens.

The exploration of the transitions taking place also monitors the sociological and judicial aspects of the various phenomena of immigration that are producing new scenarios of aggregation and participation.

The Laboratory collects and interprets per exempla (by means of research, conventions, seminars, round tables, lessons, conferences, readings, interviews, conversations, print and on-line publications, archival work, bibliographical research, video, documentary, etc.) documentation to provide a portrait of the most up-to-date urban development. It is thereby in a position to identify the best practices within and across various areas such as that of urban planning, communities, institutions.

The principal objective is the analysis of the historical city and of the "post metropolis."

In particular, the laboratory focuses on the following objectives:

- The description of models of development and transformation in the area of forms and communities: various case studies
- The mapping and monitoring of all available data in relation to the themes of planning
- Comparative analyses of the relationship between a city and its surrounding landscape in distant continents and countries
- Direct and indirect influences of aesthetic cultures in the postcolonial era
- Life styles of citizens: urban myths
- Systems of valorization and protection of historic cities
- Themes of urban design
- The innovative contributions of immigration and integration
- Indicators for the characterization of cities
- Elaborations of guidelines for best practices

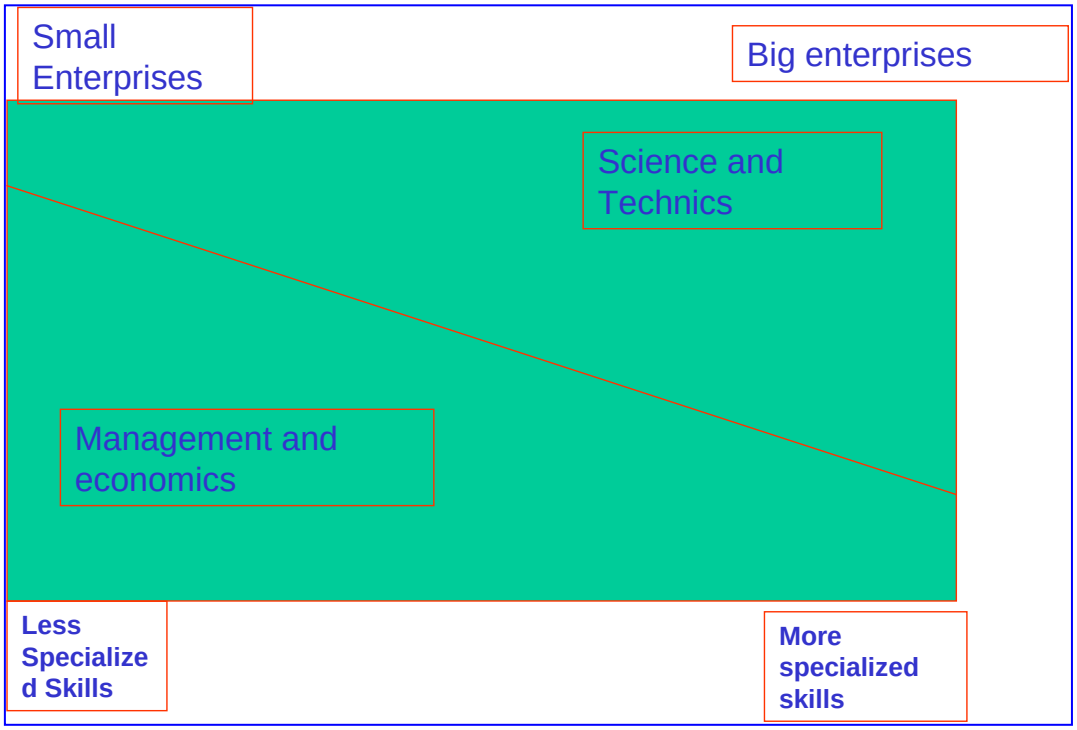
The laboratory is the result of a great deal of research that has been facilitated in the last few years : the Focus Group of the ISA; the Institute for Advanced Studies (coordinated first by Alessandro Freddi and later by Giovanna Franci and Raffaele Milani) with the title "Creativity, Technology, and Design;" the Interdoctoral Seminar coordinated by Giovanna Franci, Federico Montanari, and Ruggero Ragonese under the auspices of the SSSUB on the theme of "Imaginary City/Real City;" the Master post lauream of the University of Bologna directed by Raffaele Milani on the theme "Science and Design of the Landscape;" the Project of Formation for the Casbah of Algiers (Ipogea-Unesco, first section 2005/2008, second section 2009/2012).

Another side to analyse the poorness of Build Environment Curricula in Italy is related to the debate on the various meanings of governance and urban governance and particularly on the effectiveness of integrated urban policy strategies.

4. The market demand of competencies.

One of main issues is concerning the effective presence of 'new urban policies' are placed on the political agendas of local governments – the main customers and users of competencies in this field - and how they contribute to the transformation of the urban government system and to the implementation of urban governance. Another topic is concerning the relationships holding between integrated policies of urban development and systems of urban regulation and governance. This is the basis of the co-operation among the various agents at work in the city and, symmetrically, on the multi disciplinary approach to studies and in the competencies requested.

From this side, as connected to the economic structure of italian system of production, mainly based on SMEs , was discussed the different content of competencies required comparing to systems in which the Large Size Enterprise is dominant (See Fig. 3).



This is an obstacle to the diffusion of topics connected to Built Environment owing to the specialization of competencies that contribute to the multi disciplinary approach.

5. Conclusions.

This draft report has been prepared for an open discussion on the Reform of Curricula in Built Environment in Eastern Neighbouring Area. Authors expect that from the discussion with other partners and the comparing of results the role of Unibo Experience in this field could be more focused and detailed. This is particularly related to new Didactical Experiences and the role of Distance Learning in the production of new professionals.

A fundamental role could be the knowledge of the situation on the ground in the Universities of Beneficiary Countries and in the existing resourses dedicated to the curricular reform and to the sustainability of its results.

6. References

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M. Bianchi, L.Tampieri (2005) Life Long Learning and Managerial Development in Transition Countries, Ed. Il Ponte Vecchio, Cesena, ISBN 8883125541.
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7. Survey results in details

(In Bold the modules that in UNIBO are in MSC and not BSC, and particularly the n. 6 and 12).

BSC				
	CEN EAST PROPOSALS (Mainly on UK Universities Experience)		**UNIBO**	
	The Offer		**The Demand**	
No	**Module title**	**The programmes under which the module could be implemented**	**Module title**	**The programmes under which the module could be implemented**
1	Sustainable Design/Low Energy Architectural Design	Architecture/ Civil engineering	Sustainable Design	Final workshop:sustainable architecture School: Engineering and Architecture - Campus of Cesena Laurea Magistrale a ciclo unico (Single cycle degree/Combined Bachelor and Master - 300/360 ECTS) Degree Programme in Architecture
2	Sustainable Construction	Architecture/ Civil engineering/ Construction management/ surveying/ Planning	Construction Technique	School: Engineering and Architecture - Campus of Ravenna Laurea (First cycle degree/Bachelor - 180 ECTS) Degree Programme in Building Engineering.

3	Engineering Ethics and Sustainability	Civil engineering		
4	Sustainability & Urban Design	Architecture/ Planning	Urban Design	Final Workshop: Buenos Aires Project School: Engineering and Architecture - Campus of Cesena Laurea Magistrale a ciclo unico (Single cycle degree/Combined Bachelor and Master - 300/360 ECTS) Degree Programme in Architecture
5	Infrastructure Management and Sustainability	Civil engineering/ Planning		
6	Sustainable Water Resource Management	Civil engineering	Advanced Hydrology & Water Resources Management	**2 Year of MSc– "territorial infrastructure" - Civil Engineering**
7	Introduction to Urban Regeneration	Architecture/ Planning		
8	Ecology and Conservation/ Biodiversity and Conservation	Architecture/ Landscape/ Planning		
9	Natural Hazards and Environmental Fluid Mechanics	Architecture/ Civil engineering		
10	Disaster Risk Reduction, Resilience & the Built Environment	Architecture/ Civil engineering/ Construction management/ Planning		
No	Module title	The programmes under which the module could be implemented		
11	Modelling of Floods/ Flood Risk Management / Urban Flooding and Drainage	Civil engineering/ Construction management/ Planning		
12	Earthquake Engineering	Civil engineering	Earthquake Engineering	**School: Engineering and Architecture** **Second cycle degree/Two year Master - 120 ECTS)** **Degree Programme in Civil Engineering**
13	Climate Technology Management	Architecture/ Civil engineering/ Construction management/ Planning		
14	Climate Change: Earth System, Future Scenarios	Architecture/ Civil engineering/ Construction		

	and Threats	management/ Planning		
15	Environmental Sustainability/ Environmental Decision Making	Architecture/ Civil engineering/ Construction management/ Planning/ Real Estate		
16	Environmental Building Modelling and Building Performance	Architecture/ Civil engineering/ Real Estate		
17	Environmental Assessment of the Built Environment	Architecture/ Civil engineering/ Construction management/ Planning/ Real Estate		
18	Applied GIS and Modelling	Architecture/ Civil engineering/ Planning		
No	Module title	The programmes under which the module could be implemented		
19	Performance of Construction Materials/ Sustainable Materials and Recycling/ Natural Building Materials	Architecture/ Civil engineering/ Construction management/ Surveying		
20	Introduction to Renewable Energy/ Renewable Energy Design	Architecture/ Civil engineering/ Construction management/ Real Estate		
21	Energy Efficient Systems/ Alternative Energy Systems/ Energy, Sustainability and the Environment	Architecture/ Civil engineering/ Construction management		
22	Energy and Waste/ Waste Management and Recycling	Architecture/ Civil engineering/ Construction management		

MSC				
	CEN EAST PROPOSALS (Mainly on UK Universities Experience)		**UNIBO**	
No	**Module title**	**The programmes under which the module could be implemented**	**Module title**	**The programmes under which the module could be implemented**
1	BIM, Energy Efficiency and Sustainability	Architecture/ Civil engineering/ Construction management/ Planning/ Surveying		

2	Sustainable Design Theory and Practice	cture/ Civil engineering/ uction management/ ng/ Survying		
3	Lean Integrated Design and Production	Architecture/ Civil engineering/ Construction management/ Planning/ Survying		
4	Technology and Green Construction	Civil engineering/ Construction management		
5	Urban and Regional Regeneration/ Urban sustainability (Eco-city)	Architecture/ Civil engineering/ Construction management/ Planning		
6	Sustainable Development/Sustainable Housing and Community Development	Architecture/ Civil engineering/ Construction management		
7	Principles of Environmental Assessment and Management	Architecture/ Civil engineering / Planning/ Construction management		
8	EU Environmental Law/ Policies for Sustainability and Development	Architecture/ Civil engineering / Planning/ Construction management		
9	Spatial Planning in Action	Architecture/ Civil engineering/ Planning		
No	Module title	The programmes under which the module could be implemented		
10	Building Physics and Thermal Comfort / Health and Comfort in Buildings	Architecture/ Civil engineering/ Real Estate		
11	Advanced Thermal Modelling/ Advanced Airflow Modelling/ Advanced Lighting Modelling	Architecture /Civil engineering		
12	Building Solar Design	Architecture /Civil engineering		
13	Post-occupancy Building Evaluation	Architecture/ Civil engineering/ Real Estate		
14	Climate Change, Adaptation and Mitigation	Architecture/ Civil engineering/ Construction management/ Planning/ Real Estate		
15	Major Hazards Management/ Disaster Risk Reduction in Cities	Architecture/ Civil engineering/ Construction management/ Planning		
16	Earthquake Engineering and Structural Dynamics/	Civil engineering		

	Seismic Resistant Design			
17	Energy and the Environment/ Energy in buildings/Sustainable Energy	Architecture/ Civil engineering/ Construction management/ Planning/ Real Estate	Modelling of Energy-Consumption Behaviours	Final workshop:sustainable architecture School: Engineering and Architecture - Campus of Cesena Laurea Magistrale a ciclo unico (Single cycle degree/Combined Bachelor and Master - 300/360 ECTS) Degree Programme in Architecture
No	Module title	The programmes under which the module could be implemented		
18	Renewable Energy and Low Carbon Technologies	Architecture/ Civil engineering/ Construction management/ Planning/ Real Estate		
19	Materials for Durable and Sustainable Construction/ Natural building materials/ Sustainable construction materials	Architecture/ Civil engineering/ Construction management/ Surveying	Managing Engineering and Construction Processes	School: Engineering and Architecture Laurea Magistrale (Second cycle degree/Two year Master - 120 ECTS) Degree Programme in Civil Engineering
20	Transport Planning for Sustainable Development	Civil engineering	Sustainable Transportation Engineering	School: Engineering and Architecture Second cycle degree/Two year Master Degree Programme in Civil Engineering

PHD		
No	**CEN EAST PROPOSALS (Mainly on UK Universities Experience)**	**UNIBO**
	Module title	**Module title**
1	Sustainable real estate	
2	Sustainable building design, construction and maintenance	
3	Climate change and sustainable construction	
4	Planning and climate change	
5	Urban futures and scenario-based studies	
6	Carbon foot printing and waste management	

7	Whole-life cost and value modelling	
8	Emerging technologies and innovations for sustainable buildings	
9	Energy assessment of buildings, both new build and refurbishment	
10	Carbon foot-printing and carbon mapping of buildings, both new build and refurbishment	
11	Post-occupancy evaluation of buildings	
12	Sustainable use of construction materials	
13	Disaster risk management/ Shelter after disaster	
14	Environmental impact assessment	
15	Integration of renewable technologies into buildings	
16	Innovative construction technologies	
17	Cities and technology	
18	Seismic design and analysis	
19	Resilience of complex infrastructure networks	