



UNIVERSITÀ  
DEGLI STUDI  
FIRENZE

**DIDA**  
DIPARTIMENTO DI  
ARCHITETTURA

**SCHOOL OF ARCHITECTURE**  
Thematic seminar

**BI-IM: “+I” IS FOR INTEGRATED  
WHOLE BUILDING MODEL, RESEARCH APPROACH AND  
COLLABORATIVE METHODS DEALING WITH INDUSTRIAL CASES:  
AIRPORTS**

**Teachers**

Prof. Maria Antonietta Esposito, Università degli Studi di Firenze (Coordinatore)

Prof. Daniel Forgues, École Supérieure de Technologie, Canada (*visiting*)

Prof. Lorenzo Domenichini, Università degli Studi di Firenze

Prof. Alberto Bove, Università degli Studi di Firenze

Prof. Giuseppe Ridolfi, Università degli Studi di Firenze

Prof. Alessandra Cucurnia, Università degli Studi di Firenze

Ing. Vincenzo Loconsolo, Istituto Italiano del Rame

Students' mentor: arch. Filippo Bosi, PhD Candidate, XVIII cycle.

**Scientific and cultural framework of the theme**

The seminar is part of an agreement on cultural and scientific cooperation existing between the University of Florence and the ETS - Ecole Superior de Technologie, Montreal (Quebec) Canada. The topics covered include the parametric design and methodologies and tools for integrated planning in particular at airports. In particular, it will cover topics such as: the difficulty in achieving the objectives of sustainability,

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which characterize current practices, which show low productivity and predictability , as well as inadequate quality of the final product design. The approaches proposed are targeted to share in the project team the concept of integration, to obtain an improvement of the development process.

In addition, the approach will be contextualized within Lean Design integrated methodologies using instrumentation technology for building information modeling. BIM is presented as the solution to many problems of the industry. The large public clients worldwide require delivery of projects based on parametric models; in the UK LOD (Level Of Definition) 2 is compulsory since years, the European directive will make procurement practices harmonic throughout the EU. However for a successful use of BIM, described as a revolutionary technology, it requires a radical change in design paradigms. The seminar introduces the concepts of BIM and OPEN BIM and has its impact on the evolution of practices in the world. These aspects will also be correlated with the life cycle of the project by introducing the innovative concept of BI-IM (Integrated Building Information Modeling). Finally, the thematic seminar will provide the opportunity for an interdisciplinary debate on how these trends impact architectural design. AIA (American Institute of Architects) created a committee in 2005 to monitor the impact of BIM on design practices. The situation was summed up with the phrase "*adopt or die*"; however, the Higher Education and Research in Architecture, Engineering and Construction have poorly developed methodologies to prepare the younger generation to be the leaders of change in this industry that is undergoing a deep transformation. The first seminar will present the work of the AIA



BIM Committee and the state of the art in this field. Then examples will be introduced. Afterwards there will be a study on the situation in Europe and specifically in Italy. The seminar also provides an introduction to integrated design followed by a session of Integrated Design Workshop. At the end of the workshop the students will present and discuss the work, confronting the criteria proposed in front of an interdisciplinary committee. Student teams will be interdisciplinary, formed by architecture students, engineering students and specialists .

### **Learning objectives**

The seminar is related to the project for the promotion of international activities of the University of Florence and concerns in particular the action inherent cultural exchanges and international inter-university cooperation; in this area the aim is increasing student mobility, providing coordinated and planned training activities and transfer of scientific knowledge to date on the topic of integrated design, methods and tools.

The educational goal of the project methodologies are integrated through the development of appropriate activities of the design process and by providing guidance on the basic techniques for using the necessary technological tools. The seminar project consists of a workshop organized in collaboration with the Canadian University partners, that according to the specific objectives of the agreement on student mobility will be developed collectively in part in the Italian university and partly singularly in the foreign universities for students selected by an interdisciplinary jury. The teaching method will utilize the skills gained in the field of



international research by the various teachers involved. In particular it will be based in the fields of Design Science and Green Building.

The foreseen resources are at least one professor for each discipline involved, dedicated space for student activities, BIM software, experts to form the interdisciplinary jury .

Activities are evaluated to the jury by a discussion on the results in the projects.

### **Schedule of training activities**

The seminar will take place from September 2015 to October 2015 and includes the development of activities into 3 parts :

- The first part on Integrated design and its practice to be held on Sep 14<sup>th</sup>-18<sup>th</sup> and Sep 21<sup>th</sup> -25<sup>th</sup>;
- The second part on the BIM and Lean Thinking from Sep 28<sup>th</sup> to Oct 2<sup>nd</sup> and from to Oct 5<sup>th</sup> to Oct 9<sup>th</sup>;
- The third on impact of new trends in Architecture practices, from Oct 12<sup>th</sup> to Oct 16<sup>th</sup>.



### **Determination of ECTS of training activities**

The commitment is estimated at 6 ECTS. Consistent with the rules and regulations of the foreign institutions, a part of the credits will be recognized by the partner university. The seminar can be recognized as a free choice course/examination.

The exam will be registered with the code B020765, that students will use to compile their own curriculum.

### **Admission requirements and registration**

The maximum allowed student number is 20. Allowed students shall:

- a) be enrolled at the University of Florence at least at the 4th year of the degree course in one cycle in Architecture or Engineering, or Master of Science degree in Architecture or Engineering at the School of Architecture at the University of Florence or at other Universities;
- b) have a good knowledge of English or French language.

Students wishing to participate in the thematic workshop must submit their applications by September 1, 2015 and refine the final application by filling the application form available at the following link:

<https://txpresearch.wordpress.com/bi-im-i-is-for-integrated-thematic-seminar-application-form/>

Submissions will be accepted until all available seats on the basis of a merit list on the following criteria:

- Career regularity (number of exams compared to the year in progress);
- Total number of exams;



- Average of exams.

Additional places will be taken into consideration.

### **Description of the planned training activities**

The seminar is divided into three groups of educational activities.

#### *1 ) Integrated Design and its practices (FLORENCE September 2015)*

In-depth analysis activities of the AIA Committee Report on the state of the specific topic addressed by the seminar:

- lectures and presentations by teachers and other proponents teachers
- study/research by students .

The conduct of these activities will take place at the headquarters of the University of Florence and will develop over a period corresponding to approximately 2 CFU .

#### *2) BIM and Lean Thinking (FLORENCE October 2015)*

- lectures and presentations by teachers and other proponents teachers
- workshop activities with application design by students .

The conduct of these activities will take place at the headquarters of the University of Florence and will develop over a period corresponding to approximately 2 CFU .

#### *3) Impact of new trends in the practice of Architecture (FLORENCE October 2015)*

- Discussion of projects by students.
- Assessment and proposal of the Jury for the international exchange of deserving students.



These activities will take place at the headquarters of the University of Florence and will be developed over a period corresponding to approximately 2 CFU.

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