POLITECNICO MILANO 1863

WORKSHOP
Exchange Information Requirements (EIR) and Building Performances (BPR) Requirements: Specification and (automated) Compliance Checking Workshop

Director of the workshop: *Enrico De Angelis*

Reference Master Program: Laurea magistrale in *Building Engineering for Sustainability* (BES)
Teaching form: *Workshop with Internship*
Period: 1st semester (lessons and homeworks) + 2nd semester (Internship)

Training objectives
The workshop aims to provide students with a learning opportunity in the general framework of the *Design Management* of a building project and the specific topic of its *Compliance Checking* (towards regulations, standards and specifications), with a specific focus of its *automation*, performed on its *Information Model* (BIM). A systematic checking of a project is the basis of its *validation*, required by Italian regulations for public works as a prerequisite for starting procurement procedures, but it is also a necessary condition in any quality assurance process.
In other words, the laboratory offers a practical experience (learning by doing) linked to something that apparently has little to do with the authorial side of a project, but which today necessarily concerns (quality assurance, digitalization) any project and any disciplinary field applied to design.
The workshop is organized into four lecture modules and a internship:

1. **BP-RS: Building Performance Requirement Specification** (resp. E. De Angelis, DABC), is the first module and aims at training in the "specification practice": the definition of the project objectives as planned, by Italian Piblic Works regulations, in the *Quadro Esigenziale* and in the *Documento di Indirizzo della Progettazione*, or in the *Project Briefing*, as well as in the British *Work of Plan* (RIBA).
2. **EI-RS: Exchange Information Requirement Specification** (resp. F. Re Cecconi, DABC), is the second module, dedicated to the activity identified by the English acronim EI-RS. It corresponds to the italian practice of the *Capitolato Informativo* and aims at specifying all the *Exchange Information Requirements* of the project, during the desigh phase.

The first two modules will provide students with the skills needed in writing and fine tuning those documents, with a practical experience on a real case study, provided to the students, at the beginning of the workshop.

3. **EI-CC: Exchange Information Compliance Checking** (resp. C.Benghi, Northumbria, UK), the third module will provide the skills needed to define and use an *IDS* (*Information Delivery Specification*), the technology of the future with which to evaluate the completeness of a BIM model (in its most widespread open format, IFC), without coding.
4. **BP-CC: Building Performance Compliance Checking** (to be defined, Harpaceas spa) in which we will present and test the SOLIBRI checking platform, thanks to an agreement with the Italian software provider.

These modules deal with the *Information Management Plan*, in its *BIM version*, and the organization of its compliance checking of a project: first, for what concerns the structure and the content of the information model, then for the performances we can expect the realized building will give.

The main references are the *Italian Public Procurement Code*, the British *Plan of* Work (RIBA) and the main national and international standards for the development of BIM Models.

Organization of the workshop

Students will be engaged in 32 hours of lectures (approximately 2 hours of weekly sessions, for the whole 1st semester, outside of class hours), plus the time required for completing the assigned tasks for each module as homework, and the time dedicated to review their progress and products (to be arranged based on students' needs).

The workshop is open to all Master students at Politecnico, up to the completion of a class of 10 students. Those students who have participated to at least 75% of the lessons and successfully completed the planned assignments, will get the 4 Credits (ECTS), as allowed by their plan of studies or the course recognised as “free activity” achieved.

Additional notes:

- The schedule of lessons and review meetings, the detailed calendar of the Workshop, will be defined and finalized together with the students, as the first semester timetables will be published.
- Lessons will be held at Politecnico premises, outside of class hours, in presence (a link to a digital classroom will be, in any case available), at Campus Leonardo.
- No contribution will be requested from students, instead, they will obtain free software licence for the whole workshop period, to perform the requested tasks
- The tasks to be assigned and to be carried out independently by the students do not include experimental activities or visits to plants, construction sites or external companies.
- No “educational visits outside the Politecnico premises” are foreseen and students will only be involved in frontal lessons, online or in presence review meetings, or other initiatives, at the Politecnico facilities (except internship periods, of course).
- The use of laboratory facilities of any kind is not foreseen.