

## **Course name: Design Studio IV**

(Italian) Laboratorio di progettazione 4D

School of Architecture, "Sapienza" - University of di Roma

Professor Antonino Saggio, see Profile: <http://www.arc1.uniroma1.it/saggio/cv/>

Web Site: <http://www.arc1.uniroma1.it/saggio/>

Department: Architettura e Progetto via Gramsci n. 53 - 00196 Roma ph. 06 49919223

Architectural Design, prof. arch. Antonino Saggio

Environmental Technology, prof. arch. Maria Morlacchi

Building Systems, doc. arch. Valentina Sforzini

Assistents at the research: Phd candidates arch. Rosetta Angelini, arch. Gaetano De Francesco

This architectural design lab is planned to engage students in the design of a building of medium complexity to be located in an empty urban space of the city of Rome. The peculiarity of this Design studio is the relationship that is established between the program and the project area, and between the expected occupants and the set of theoretical and practical aspects of architectural and urban design that are addressed in this course. The program of the project lies in the large part on the concept of mixité. Therefore IT proposes a combination of different activities organized from a strong idea of use, i.e. a driving force that motivates the project and its need in the contemporary city but also more specifically in the selected area. Each student will choose in fact a specific area for his/her project in a "Urban Voids" located in the north of Rome along the areas close to the River Tiber. In this area he/she will develop a program in close relationship with the teacher but also with the support of promoter or virtual client. The course makes use of the Environmental Technology modules and Building systems to make the project bio-climatically aware.

The course will be organized in thematic cycles (the selection of the program, the spatial concepts, the spatial expressive and distribution organization). Each cycle will always provide one or more lessons, theoretical revisions and personal or collective presentations. The complex web of practices promoted by the course will be supported by the Course web site, by Google maps to localize the urban voids, by a general blog and also by the individual blogs of each student. This system will create a dense network of shared experiences materials and knowledge. The course includes a pre-test in the second half of June and closes with a single exam session on July 16 and 17, 2013.

In short, the projects that are produced in this laboratory, which were widely published on paper (see Bibliography) and on the Web, are intended to promote the development of micro architectures that are based on six key features:

- The creation of innovative programs to use based on the concept of "mixité"
- Enhancement of areas abandoned or underused city
- The study of new approaches in terms of bioclimatic and environmental
- The use of information technology in the dissemination and co-responsibility of the project
- The activation of concrete relationships with potential project partners considered as indispensable actors in the social and economic context of the city
- The contribution to the professional role of the designer as the carrier of a role "Pro-Active" in contemporary society.

Of course, the strength of three hundred projects to date with this approach lies not in the individual aspects listed above, but in their intertwining synergy that is the peculiar characteristic of every effort in the specification of Architectural and Urban Design.

### Theoretical aspects

In teaching, we believe central planning effort to bridge the separation between the analytical phase (knowledge) and a synthetic phase (design). The risk is to have one hand sectorialisation of specialist contributions, almost to the same ineffectiveness of their development decisions, and the other an "aura" of the designing process. Aim of the course is on the contrary make the students aware of the tools, techniques, concepts and "tools of the trade" of the project. From this point of view, the course inscribes in the category of "instrumentality". An instrumentality that connects always the theoretical moment to the design tools to address the issues proposed. To this end, the contributions of the modules of Environmental Technology and Building systems will come to be an integral part of the Laboratory in a continuous cycle of investigation and verification.

The method of conducting the Laboratory is based on a teaching philosophy of dewyian origin whose base is the attempt does not sever the analysis phase (i.e. the transmission of a series of knowledge and issues related to the theme) from the phase of Synthesis (i.e. the development of the project). The method of hypothesis-synthesis allows the test of design decisions throughout the entire course period and throughout the entire design process. The collection of new informations (i.e. ex cathedra lectures, seminars, lectures, visits, etc.) are structured in thematic cycles to mature and deepen the design assumptions. The information thus create a moment of truth, a "test" for the design assumptions gradually formulated and require subsequent modifications and refinements of the project.

Derived from this framework, the course is divided into several thematic cycles. Each cycle consists of one or more ex-cathedra lectures, individual revisions, collective workshop with presentations of project ideas. The fundamental cycles are the following:

1. The city and the urban voids
2. The setting (Module and environmental systems)
3. The program will use the concept of mixité and promoter
4. The layout of the volumes and the Checkerboard design
5. System technology and systems (Module and environmental systems)
6. The distribution system and the conquest of the center
7. The expressive and the five categories of vision
8. The Synthesis Project

### **Organizational aspects and Design modules**

The compulsory attendance by the students will be checked. The use of portable computer is considered particularly useful in this course. We recommend using the program Sketch up, which has a light version for free download <http://it.sketchup.com>. Creating an individual blog is required as a means of relationships with other students, and delivery interim presentation of the project. We recommend the creation through <https://www.blogger.com/>

In particular, the Environmental Technology teaching module will be aimed at defining the microclimate of the site with information regarding the prevailing ventilation and daylight situation in summer and winter. This will achieve some of the influences on the design

concerning the orientation and exposure to optimize solar collection winter and summer shield and of course some possible consequences on the external arrangement of the common areas and bioclimatic device for the control and passive management of the climate inside the building.

Also in this module the energy behavior of buildings will be addressed, in particular:

General overview of thermal storage systems and natural cooling of buildings

Selection of the types of devices, on the basis of the timing of use of the own use of the building object of the experimentation.

Passive integrated into the design: facades and roofs

Active systems of energy production from renewable sources.

Introduction of new national and local energy savings (Legislative Decree 192 and Resolution No. 48 of the Municipality of Rome)

Integration of the chosen devices and bioclimatic building situation in summer and winter.

Advice during the design review.

The Building Systems module is seen as an opportunity to intervene in the creative and design process of students, through notions of comfort and well-being within the built environment.

Starting with the latest building regulations, to address the issue of the building's energy requirements in relation to the use of renewable resources and the introduction of passive and active solar systems.

An overview of examples of buildings with energy-saving features, will provide some tools to recognize, analyze and to understand the solutions adopted in each building.

Also, depending on the needs of ongoing projects will be carried out in-depth on the issues of psycho acoustics and architectural acoustics.

#### Final Examination

Attendance is required and students have to prove to have passed all the eight cycles.

The materials for the exam are:

1. A detailed portfolio that contains a summary of lectures, readings, studies and project ideas submitted in each Studio cycle.
2. A series of drawings, which will be detailed over the content, and that will synthesize, together with a model, with the proposed project.
3. A functioning blog which contains the products of the course and the basic researches conducted by each student.

The student will reveal a sufficient mastery of the material presented in the workshop and the preparation of a project proposal appropriate to the objectives.

#### **Bibliography**

The more specific literature d will be provided together with the unfolding of the teaching. The following volumes are aids and supports to effective development of the design themes of the course

\* Urban Green Line. Progetti sistemici per una infrastruttura ecologica a Roma, Lulu.com 2012

\* UrbanVoids, **UrbanVoids™ Strategie nuove partnership per progetti sostenibili nella città di Roma**, lulu com 2010

\* Antonino Saggio &Scanner@Nitro, **Roma a venire, progetti per una città dell'informazione e della storia vita**, Aracne editori, Roma 2009 anche <http://www.arc1.uniroma1.it/saggio/roma/>  
Antonino Saggio, **Architettura e Modernità, Dal Bauhaus a la Rivoluzione Informatica**, Carocci, Roma 2010

*“Urban Green Line” una infrastruttura ecologica a Roma tra passato e futuro.* «L’Arca international» marzo 2012 also in english and in french

\* Also in ePub download <http://www.lulu.com/spotlight/ITools>