

Course name: **Information Technology in Architecture. Theory Experiments Applications (Computer Supported Design in Architecture) 8 credits 2021**

Italian: Progettazione Architettonica Assistita
School of Architecture, "Sapienza" - University of di Roma
8 credits

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The course Information Technology in Architecture. Theory Experiments Applications in Italian Progettazione Architettonica Assistita, V Year 8 credits, presents a combination of theoretical and applied aspects. The theoretical ones concern the relationships between Information Technology and Architecture in this phase of history. From the application point of view, students are guided through tutorials and use of laboratory experimentations of different environments and understanding of different design modes with computers. This process takes place gradually in eight thematic cycles ranging from "World of Raster" to "the Modifiers." Each cycle offers lessons on its theoretical context of computing together with the parallel developments in contemporary architectural research. At the end of each cycle, the students prepare a specific assignments. All exercises from the first to the final are guided by the same research theme this year is defined by the title of the course: "UNLost territories Crisis and Information Technology: The Aniene Rims" and whose implications will be gradually presented to students in the lectures. This current here specific attention is given to the situation along the river Aniene. The course is required mandatory to be attended.

The course is open to senior students, students and phd students of other faculties and can be followed on line previous specification with the professor, satisfactory results are prerequisite for a Phd dissertation or Graduation thesis with professor Saggio as advisor.

Course Objectives

The overall objectives of the course which can be summarized in the following points:

1. Critical awareness of the impact of information technology in the world and in contemporary culture.
2. Theoretical and critical awareness of the main sub-sectors in which the architectural and urban design can draw new ideas from computer.
3. General knowledge of the fundamental technical and operational knowledge regarding the architectural design.
4. Direct and in-depth knowledge of specific areas of design information used in support of advanced experimentation.

Principal Contents

The course will consist of lectures, seminars, tutorials, traditional and electronic reviews. It is organized into seven thematic cycles, each marked by a pair of points of view: the first looks at contemporary architecture - its lines of development and its latest research - the second point of observation, deals with the field of knowledge and in-depth technical and technology in relation to the world of electronic. The apparent imbalance between the two points of views determines the internal dynamics of the course, its motivation and its ultimate reason. Here are the seven major areas of work:

1. The impact of information technology in the city and contemporary architectural research | The World Wide Web
2. The world of pixels: materiality and immateriality | Hardware and screens, scanning images | The World raster.
3. The layering and overlapping | The World of vectors. Geometries and layers. Scripting
4. Mass collision & trajectories | The creation of three-dimensionality. Extrusions, rotations, Boolean Operations
5. Strategic data driven projects | The organization of information. The database
6. The projects of modification | Dynamic interconnections. Hierarchical structures and intelligent models
7. New Frontiers of Research | Morphing, modifiers, poly surfaces, attractors (optional depending on calendar)

Examinations

The course leaves students free to locate in the field of architecture, design and urban design the fields where information technology is not an accessory, but a range of actions and technologies to deal with, an objective situation of difficulty. The title of the course "Modernity Crisis Information Technology" in fact echoes the idea that modernity is related to an answer to a crisis" a moral contradiction, and it also raises an aesthetics of rupture and change" (Zevi, Baudrillard). In this year the practical experiences of the students will focus on is the creation of a large progetto for Roma called "UNLost Territories Aniene Edges".

The project intends to relate in a urban design a series of urban and underutilized areas in Rome, as said, with particular attention along the Aniene rim.

Will be the subject of the final examination the following documents (also in electronic form and in summary form).

- A. A log book will contain notes and comments of ex cathedra lectures, seminars and monographic section with a body extended and detailed reading and study.
- B. Intermediate tests requested by the teacher in relation to the seven points listed above
- C. A final thematic research that addresses the educational and conceptual lines, and the main design features and experimental in the monographic theme of this year's "UnLost Territories Aniene Edges." The thematic research will develop a direct relationship with the teacher.

The oral examination performed will include a section in which the student will demonstrate an understanding and assimilation of different materials exposed in thematic cycles and illustrative part of the documents produced at points A. B. and C.

The frequency of the Course is considered essential along with an attentive presence and active participation during class time that will take place entirely in the laboratory.

Bibliography

Antonino Saggio, *Thoughts on a Paradigm Shift The It Revolution in Architecture -Pensieri su un cambio di paradigma La rivoluzione Informatica in Architettura*. Lulu.com2020, “ Edizione bilingue Italiano e Inglese oppure in alternativa solo in Italiano
Antonino Saggio, *Introduzione alla Rivoluzione Informatica in Architettura*, Carocci, Roma 2007 or Antonino Saggio, *Introduzione alla Rivoluzione Informatica in Architettura*, Carocci, Roma 2007
Antonino Saggio, *Architettura e Modernità, Dal Bauhaus a la Rivoluzione Informatica*, Carocci, Roma 2010
Architettura&Information Technology (a cura di Antonino Saggio e nITro) Mancosu 2011
** *Urban Green Line” una infrastruttura ecologica a Roma tra passato e futuro*. «L’Arca international» marzo 2012 *Urban green Line an ecological infrastructure between past and future*
Tevere Cavo una infrastruttura ecologica per roma tra passato e futuro (a cura di G. De Francesco, A. Saggio) Roma Lulu 2018
UNStudio a cura di Gaetano De Francesco et al, Lulu com, 2016

Books of the series “The IT Revolution in Architecture. Series edited by Antonino Saggio”

Elisabetta Bonafede, *PlasmaWorks*, EdilStampa, Roma 2011
Cesare Griffa, *Smart creatures Progettazione parametrica per architetture sostenibili*, EdilStampa, Roma 2011
Antonino Di Raimo, *François Roche*, EdilStampa, Roma 2014
* Andrea Sollazzo, *van Berkel Digitale*, EdilStampa, Roma 2010
* Michael Leyton, *La forma come memoria*, EdilStampa, Roma 2009
Pongratz&Perbellini, *Cyberstone*, EdilStampa, Roma 2009
Patrizia Mello, *Toyo Ito*, EdilStampa, Roma 2008
* Stefano Converso, *SHoPWorks*, EdilStampa, Roma 2008
* Kas Oosterhuis, *Ipercorpi*, EdilStampa, Roma 2008
* Antonello Marotta, Diller e Scofidio, EdilStampa, Roma 2005
* Alberto Jacovoni, *Gamezone*, EdilStampa, Roma 2006 Nigel Whiteley, Penezic&Rogina, EdilStampa, Roma 2006
Antonello Marotta, Paola Ruotolo, *Arie Italiane*, EdilStampa, Roma 2006
* Antonello Marotta, Diller + Scofidio, EdilStampa, Roma 2005
* Alberto Jacovoni, *Gamezone*, EdilStampa, Roma 2006
Ladaga &Manteiga, *Strati Mobili*, EdilStampa 2006
* Michele Emmer, *Mathland*, Testo&Immagine, Torino 2003
* Paola Gregory, *Territori della Complessità*, Testo&Immagine, Torino 2003
* F. De Luca, M. Nardini, *Dietro Le Quinte*, Testo&Immagine, Torino 2002
* Furio Barzon, *La Carta di Zurigo*, Eisenman De Kerckhove Saggio, Testo&Immagine, Torino 2003.

* Available in english and in Italia also at Amazon or Lulu
Further reference material is provided for each teaching module
<http://www.arc1.uniroma1.it/saggio/>

A condensed version of this entire course is available at
https://antoninosaggio.blogspot.com/2020/03/a-paradigm-shift-it-revolution-in_25.html