Courses to be offered by the Doctoral School of the Polytechnic of Bari (Academic Year 2019/20)

1. Theories and methods of design for the Antique, 3 CFU, SSD: ICAR/14.

Syllabus:

The course is divided into two parts, corresponding to the two blocks of lessons and exercises.

The first part (20 hours, 2 ECTS) will be structured into four thematic sections: the first, by investigating the contributions offered by the Masters of Architecture between the XIX° and XX° centuries and deducing their theoretical background, will try to outline the general principles underlying the main points of view that connote contemporary architectural research; the other three will be thematically articulated and focused on the relationships between "Antique and Landscape", "Antique and City", "Renovation and Museography", and will see the compositional analysis of some exemplary contemporary works, in order to recognize methods and techniques of the design for the Antique.

The second part (10 hours, 1 ECTS) will be devoted to the exercises. They will be carried out in the modality of an intensive design workshop, dealing with and developing a project concerning the main topics of the course.

2. Theory of Contemporary Architectural Research, 3 CFU, SSD: ICAR/14.

Syllabus:

It seems lost today, in architecture as generally in arts, an unitary point of view on which to found a theory on. That civil conscience that has always been the basis of the art of building seems no longer part of the collective heritage. This condition is recognizable in the contradictory experience of contemporary architecture.

For this reason the class aims to try to outline a "classical" theory of architectural research; a classicism that does not renounce, rather it investigates, the culture of modernity, trying to measures itself against this alleged contradiction. All the architecture that we can include within the “classic” experience (that we can also define “rational experience”) is characterized by a peculiarity: the intelligibility of forms, along with we define a method of formativeness.

According to this idea of architecture, there’s no advancement of forms without an advancement of knowledge - without an increasingly higher level of self-awareness. Hence the need for a theory of architectural research.

The method of formativeness we want to investigate regards three major chapters of architecture:

The relationship among architecture, city and landscape;

The “construction issue”;

The question of the project with the Ancient.

3. Theories and Methods of the Project for the City, 3 CFU 3, SSD: ICAR/14.

Syllabus:

The course is divided into two parts, corresponding to the phases of lessons and exercises.

The first part of the course (20 hours, 2 credits) will deal with issues related to the city as a historical- aesthetic palimpsest, interpreted as a synthesis of an approach that is both documentary and transformative, based on the relationship between physical form and "cognitive form".

The second part (10 hours, 1 credit) will instead focus on issues relating to the processes and methods of urban interpretation and modification throughout history, focusing especially on those that have appeared since the twentieth century, with their multiple problems.

In this sense, various themes will be central, such as that of the "diachronic relationship" within the general urban processes, the theme of the narrative function of their inheritance, and finally the theme of the consequent theoretical and methodological choices, developed -in different ways- in the main researches of Italian and international contemporaneity (from the "organic vision" proposed by the first Roman and then Muratorian schools, to the phenomenological-cognitivist one proposed by the various Italian and American schools already in the second half of the 1900s, to the analytical- structuralist research of the successive neo-rationalist tendencies, up to the most recent ones, which experience the "dialectical contradiction" as a tool through which to reformulate the figurative heritage in relation to the unprecedented condition of the contemporary city).

This phase will be carried out through an intensive urban design workshop, based on the critical exercise of the main themes developed during the course.

4. Theories and Methods of the Project for the Territory, 3 CFU, SSD: ICAR/21.

Syllabus:

The course is divided into 2 steps, corresponding to the 2 blocks of lessons and exercises.

The firs tstep (20 hours, 2 ECTS) will be structured in 4 thematic sections: the first will deal with general questions on the main approaches to the contemporary territories regarding a discipline

that is found between the epistemological model of scientific disciplines and that of Social Sciences; the other 3 lessons will focus on the topics that are at the heart of the contemporary disciplinary debate (as well as in the PhD course in "Project for Heritage: Knowledge and Innovation"), relating to the relationship between" City and Landscape "and" Architecture and Heritage ".

The second step (10 hours, 1 ECTS) will be dedicated to exercises and seminars of teachers external to the course: the first will be conducted in the form of a workshop on sample territories on which to experiment an approach to contemporary issues (relationship between places and communities, territories palimpsest, territories in crisis…), developing a synthetic written-graphic report concerning the main topics of the course. A seminar held by an Italian or foreign external personality, with a relevant point of view on the topics of the course, will allow a wide reflection between PhD students and author on the topics covered.

5. Theories and methods in structural design: modeling and experimental issues, 3 CFU, SSD: ICAR/08 – ICAR/09

Syllabus:

The shape of masonry constructions and the influence of the curvature in the load bearing capacity of arches, domes and vaults. Seismic actions and masonry constructions.

Mechanical behavior of masonry: heterogeneity, different behavior in tension / compression, non-linear mechanical response, anisotropy, failure modes, damage.

Modeling strategies: micromechanical models, FEM and DEM implementation of micromechanical models, macromechanical models, multiscale models, NT (No-Tension) and RNT (Rigid No-Tension) models, macro-elements.

Limit Analysis: static and kinematic approaches. From the static approach of Limit Analysis to the relation between shape and structures in masonry arches and vaults (and back to graphic statics).