

**What and Why**

**Content of Architectural Technology**

*Building Technology:*

- general knowledge of building construction
- how buildings stand up and are constructed
- choice and composition of basic materials or components of a construction
- composition of the structural frame and its performance
- construction methods
- requirements and performance specifications
- assimilation and improvement of traditional "empirical" construction methods
- restoration and conservation of vernacular buildings
- production and presentation of working drawings
- architecture and earthquakes

*Structural Mechanics:*

- calculations of structural frames
- strength of materials
- reinforced concrete
- steel structures

*Energy-Bioclimate Design and Technical Installations:*

- basic knowledge of building services
- heating / water supply / electrical / plumbing
- energy-bioclimate design of buildings and settlements

*Building Material Technology:*

- building materials and their performance
- basic properties of building materials
- protection against heat, cold, humidity and sound

*Educational Objectives*

- the study of general principles for the design of a building
- the study and the evaluation of the criteria influencing the design
- the transformation, compatibility and adaptation of the details

according to the requirements of the design

- the relation of design, function and construction
- training and educating of future architects to practice their profession
- to convey the required knowledge of how to design and build buildings
- in relation to structural mechanics, services and materials the collaboration with the specialists

### *Educational Methods*

According to the semester in question and the subject, educational methods for building construction vary. In the early semesters the allocated hours are separated in two hours of theoretical teaching for the whole class and three hours of studio in smaller groups (approx. 25-30 students per tutor). The second part is dedicated to the preparation of an exercise.

In the latter part of the studies and especially with the elective subjects, the separation in smaller groups is realized from the beginning, to enhance the personal contact between student and tutor.

In the last part of the curriculum, teaching has become a concise and holistic method, where the tutors of the design studio are from different disciplines such as designers, interior designers, planners and construction specialists, with the assistance of engineers.

### *Pedagogic Strategies*

The basic pedagogic strategy is to educate and train architects as competent designers. All the subjects that students are being taught, during their studies, have this aim as their highlight. Thus the curriculum contains a wide variety of subjects starting with fine arts and history, cultivating the general knowledge of the students and continuing gradually with more specialized architectural subjects. Their studies reach the climax with the written dissertation and the final design thesis, which is nowadays a study very close to an actual professional study. The teaching of construction is striving to provide the required knowledge for the students to reach successfully the climax with the design thesis.

### *Relation to Studio Teaching*

In previous times teaching of construction was completely separated from the design studio. With the latest improvements in the school curriculum construction is incorporated as an integral part of the design from the earliest stages. The aim is to emphasize that there is only one architecture that includes synthesis and construction and that these two elements cannot be separated.

### *Qualifications of Staff Teaching Construction*

The staff teaching Building Construction is comprised of architects.

## **How**

## **Who**

Occasionally the assistance of an engineer is required.

Structural mechanics staff is comprised of structural engineers.

Services and energy and bioclimatic design by a mechanical engineer.

Building material technology by a civil engineer and physics specialists.

## **When and to What Extent**

### *Timing and Teaching Hours of Construction*

As described above teaching of construction is separated into subjects of only building construction, in the early stages and subjects of collaboration with other disciplines in later stages.

Thus building construction is taught in the 3<sup>rd</sup> and 4<sup>th</sup> semester five hours (two theory and three studio in smaller groups), in the 5<sup>th</sup> semester for two hours and the 6<sup>th</sup> semester with a small design project for six hours. Further in the 5<sup>th</sup> semester in collaboration with the morphology colleagues the students examine and analyze the architecture and the construction of vernacular architecture for six hours. Finally in the 7<sup>th</sup> and 8<sup>th</sup> semester in collaboration with colleagues from other disciplines, as described above, the students prepare their design project for eight hours in two days.

Apart from the compulsory subjects there are four electives with at least three hours each, dealing with history of technology, industrialized building systems, rehabilitation, repair and maintenance of vernacular buildings and light weight structures.

Structural mechanics is taught in the first three semesters for four hours, with two electives equally for three hours each.

Building material technology is taught in the first two semesters for two hours each.

Finally services is incorporated in the teaching hours of building construction.

## **Virtual Reforms**

### *School's Mission about the Teaching of Construction*

The school of Architecture in Athens, being a part of a technological university, is bearing a tradition of educating architects as engineers. Thus the degree has the official title of "Architect-Engineer", which reflects also the official professional qualification. Nevertheless the training of students of architecture was never to that extent to claim that they could operate as structural engineers. In recent years, without changing the official title, the tendency is to transform the curriculum into an actual architectural design content, reflecting the desire of a more qualitative result. At the same time the aim is to improve the quality of the studies without losing altogether the technological character, rather to incorporate

the teaching of construction in the synthesis, giving the students a complete and concise impression of what architecture means in actual terms.

The new curriculum is in operation for the past five years and the justification of its implementation, is reflected in the quality and the completeness of the final design thesis of the graduating students.