

## **Faculty of Architecture**

**Department:** Construction Engineering

**Professional field:** 5.7. Architecture, Civil Engineering and Geodesy

**Specialty:** Building Constructions

**Educational-qualification degree:** Master

### **COURSE DESCRIPTION**

1. Course title: **Computer Modeling of Building Structures**
2. Course code: **INF 3025**
3. Type of course: **compulsory**
4. Level of course: **Master**
5. Year of study: **first**
6. Semester when the course is delivered: **first**
7. Number of ECTS credits allocated: **6 (3 – lectures and 3 – seminars and coursework)**
8. Name of lecturer: **Assoc. Prof., Eng. Ivan Pavlov, PhD**
9. Learning outcomes of the course: as a result of the course students will acquire advanced and sophisticated knowledge in this area by the development of more sophisticated models and consideration of more options for analysis, with particular emphasis on those related to the issues of stability and the calculation of structures under seismic action.
10. Mode of delivery: **face-to-face**
11. Prerequisites and co-requisites: students have to possess basic knowledge and to have already acquired the necessary theoretical and practical training in computing, and also to know the finite elements method of the subjects Construction Statics, Theory of Elasticity and Stability and Dynamics of Building Structures, which are covered during the Bachelor course of Construction Engineering.
12. Course contents: to form knowledge regarding the computer modeling of building structures, by SAP2000 and Tower 6 – defining the geometry, characteristics of the items, load conditions, sampling, visualization and documentation of the results.
13. Recommended or required reading:
  - SAP2000 Getting Started
  - SAP2000 Graphic User Interface Manual
  - SAP2000 Basic Analysis Reference
  - SAP2000 Analysis Reference (Volume I and Volume II)
  - Бобев, Т., Кратко ръководство за работа със SAP 2000, електронен формат, 2008
  - Tower 6 – ръководство с инструкции за работа с програмата
14. Planned learning activities and teaching methods: **lectures, seminars, coursework, contact hours, independent work.**
15. Assessment methods and criteria: The examination is practical. Each student draws an individual examination ticket containing the scheme of reinforced concrete or steel construction, load data and an indication which of the two programs (SAP2000 or Tower 6) to be used. It is necessary to build a computer model of the structure to make those decisions and to visualize and analyze the results. The evaluation is formed depending on the extent to which the student is familiar with the principles of computer modeling; his skills to realize practically the different stages and give proper engineering interpretation of the results obtained
16. Language of instruction: **Bulgarian, English**
17. Work placement(s): **none**