



Competition for the position of **Associate Professor, pos. 5** from the list of  
Academic Staff Positions of the **Civil and Industrial Engineering**

Subjects of the position

- Surveying
- Constructive systems for building structures

**COMPETITION TOPICS**  
**for the position of Associate Professor**

1. Basics in constructions, design procedures, components etc.
2. Constructive structures classifications
3. Construction stages for construction structures
4. Buildings constructive elements (structural, non-structural and finishings)
5. Buildings infrastructures, connection of foundation & ground
6. Modern elements for performance and quality in construction
7. Infrastructures for masonry structure buildings
8. Solutions and modern technologies for engineering structures
9. Basic in Land Surveying (Basics elements, Surveying's topics, Land measurements timeline, Surveying relevance for Civil Engineering)
10. Basics in Geodesy (Earth's shape and dimensions, Topographic points' position on the Globe, Topographic projections used in Civil Engineering used in Romania)
11. Basics in Cartography (Topographic maps / plans, Chartesian co-ordinates determination, Distances measurements & determination, Altitude's determination, Topographic profile's drawing-up)
12. Planimetry: Principles. Direct measurement of the distances on the ground. Tacheometer's study. The angle and distances measurements using the tacheometer (direct, optic and electronic). Supporting networks for the planimetry. The setting-up of the planimetric details. Planimetric traverse methods. Radiations points method. The drawing of the topographic plans. Surface determinations (on ground or on the plans).
13. Levelling: Principles and classifications. Levelling traverse. Marking the levelling landmarks (reference points). Instruments used to determine the level differences – the levelmeter. The



geometrical and trigonometrically levelling – networks, methods, principles. The relief’s representations by levelling.

14. Tacheometry: Principles. Calculus methods in order to determine the position a topographic point on the space. Classical and modern tacheometers. Methods and instruments used in tacheometry.
15. Surveying’s Applications in Civil Engineering: Topographical documentation – contain, descriptions and accuracy. Planimetric methods in order to set-up a building – polar coordinates method, rectangular coordinates method, linear intersections method, angular intersection method. Basic principles in order to set-up a building. Setting-up the angles, distances and axis on the ground. Setting-up the quotas and level differences. The building foundation setting-up.
16. In-Time Monitoring of the Engineering Structures: Principles and methods. The “in-situ” measurements of the displacement and deformations.
17. Global Navigational Satellite System-GNSS: Basic notions, descriptions, principles and instruments used in GNSS systems; Civil Engineering practice applications

### **Bibliography:**

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6. Daniel Covatariu, “*Surveying*”, Editura Societății Academice „Matei-Teiu Botez” Iași, ISBN 978-606-582-139-2, 2019;
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The bibliography is available at the library of the Faculty of Construction and Installations and/or at the Department of Civil and Industrial Buildings.

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