**The Name of Institution:** Faculty of Electrical Engineering, University of Belgrade

<table>
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<th><strong>Description of an Individual Course Unit</strong></th>
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<tr>
<td><strong>Course Code:</strong> 13E073SAP</td>
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<tr>
<td><strong>Course Title:</strong> Software tools for antenna design</td>
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<td><strong>Prerequisites:</strong> None</td>
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<td><strong>Lecturer(s):</strong> Dr Branko Kolundzija, dipl. inž. Slobodan Savić</td>
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**Objective of the course:**
Introduce students to the most important software tools for 3D electromagnetic modeling and to prepare them for individual design of antennas and scatterers.

**Course Contents:**
1. Introduction. Significance of software tools in antenna and scatterer design. Historical review.
2. General principles in electromagnetic modeling.
3. Numerical methods used in the analysis of antennas and scatterers: MoM, FEM, TLM, FDTD, PO, GO, Hybrid techniques.
4. Review of software tools for antenna and scatterer design: NEC, MiniNEC, SuperNEC, WireZeus, AWAS, OSU code, FEKO, IE3D, HFSS, WIPL-D.
5. Introduction to the software packages AWAS and WIPL-D.
6. Advanced techniques for antenna and scatterer design.
7. Assessment and improvement of the results of analysis.
8. Distinctiveness in the modeling of scatterers.
9. Distinctiveness in the modeling of special classes of antennas (wire, helicoidal, horn, reflector, and patch antennas).
10. Modeling of antenna arrays.
11. Optimization: general principles, methods, software.
12. Design of antennas and scatterers using AWAS and WIPL-D.

**Teaching Methods:**
15 hours of lectures + 45 hours of supervised problem classes in the laboratory. Approximately 75 hours of personal study and exercise (4 hours per week during semester, and approximately 15 hours of preparation during exam term).

**Literature:**

**Assessment methods:**
Exam - Three-hour examination (30 points maximum). Successful laboratory work adds 70 points. To pass the course, at least 51 points must be achieved.

**Language of instruction:** Serbian

**Date:** 18.10.2017

**Signatur:**