

Specification for the book of courses

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|--|--|--|--|----------------------|
| Study program | | Electrical Engineering and Computer Science | | |
| Module | | Common | | |
| Type and level of studies | | Doctoral studies | | |
| The name of the course | | Advanced Topics in Electromagnetic Compatibility | | |
| Lecturer (for lectures) | | Javor L. Vesna | | |
| Lecturer/associate (for exercises) | | | | |
| Lecturer/associate (for OFE) | | | | |
| Number of ECTS | | 10 | Course status (obligatory/elective) | Elective |
| Prerequisites | Knowledge of basic principles and techniques of electromagnetic compatibility | | | |
| Course objectives | Study of advanced topics in the field of electromagnetic compatibility: design of devices and systems, electrostatic discharges, atmospheric discharges, intentional electromagnetic interference and data protection of electromagnetic signals from the detection. | | | |
| Course outcomes | Ability to design devices and systems in accordance with electromagnetic compatibility requirements. Contribution to the study of electrostatic discharges, principles and techniques of intentional electromagnetic interference and detection of electromagnetic signals. | | | |
| Course outline | | | | |
| Theoretical teaching | Practical problems in electromagnetic compatibility (EMC) testing. Modeling the occurrence of electrostatic discharge, compliance with the standards in this field and EMC techniques. Testing the EMC with the power supply network and measures for improving power quality. Electromagnetic interference due to lightning discharges (LEMP) and nuclear explosions (NEMP). Detection of unintentional electromagnetic signals (TEMPEST) and causing intentional disturbances. Application of EMC techniques in the design of devices and systems. Modern equipment of laboratories for testing EMC. | | | |
| Practical teaching (exercises, OFE, study and research) | Practical lectures are realized through exercises on the computer and participation in testing of devices in the laboratory for testing electromagnetic compatibility. | | | |
| Textbooks/references | | | | |
| 1 | Ott H. W., "Electromagnetic compatibility engineering," John Wiley & Sons, 2009. | | | |
| 2 | Williams T., "Electromagnetic compatibility for product designers," Newnes, 2016. | | | |
| 3 | Đorđević A., Olćan D., "Electromagnetic compatibility testing," (in Serbian), Academic Mind, Belgrade, 2012. | | | |
| 4 | Keiser K., "Electromagnetic compatibility handbook," CRC Press, 2004. | | | |
| 5 | Rachidi F., Tkachenko S., "Electromagnetic field interaction with transmission lines", WIT Press, 2008. | | | |
| Number of classes of active education per week during semester/trimester/year | | | | |
| Lectures | Exercises | OFE | Study and research work | Other classes |
| 3 | 0 | 0 | 0 | 0 |
| Teaching methods | Lectures and consultations. Testing device compliance with EMC standards and EMC testing laboratory activities. | | | |
| Grade (maximum number of points 100) | | | | |
| Pre-exam duties | | Points | Final exam | Points |
| Activity during lectures | | | Written exam | |
| Exercises | | | Oral exam | 50 |
| Colloquia | | | | |
| Projects | | 50 | | |