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| Study program: Mechanical engineering | | | |
| Type and level of studies: Doctoral studies | | | |
| Course unit: Modeling and Measuring of Risk | | | |
| Teacher in charge: prof. dr. Mirko Djapic | | | |
| Language of instruction: English | | | |
| ECTS: 5 | | | |
| Prerequisites: | | | |
| Semester: winter | | | |
| Course unit objective: Introduce students with advanced concepts and methods for modeling and measurement of risk in engineering and management. | | | |
| Learning outcomes of the course unit Students should acquire knowledge and skills that will enable them to recognize the risks in its problems, modeling it using modern mathematical tools such as Bayesian belief networks and a evidence network (based on the Dempster-Shafer theory of belief functions). | | | |
| Course unit contents <i>Theoretical classes</i> Historical development of the concept of risk, basic concepts and standardization of risk (ISO 31000:2009), Enterprise risk management concept (ERM), Risk assessment in different business processes, Risk as a basis for product conformity assessment, Risk assessment in standardized management systems, Mathematical tools for modeling and measurement of risk, Application of Dempster Shafer theory (evidence networks) and Bayesian networks in modeling risk. <i>Practical classes</i> A student project consists of modeling risks in the selected problem by the evidence networks | | | |
| Literature 1. Djapic, M., et al (2012): Risk Assessment Concept in the New Approach Directives and its Integration in the Enterprise Risk Management (ERM), Industrija, Vol. 40, No. 1, pp 3-38. 2. Hampton, J., Fundamentals of enterprise risk management: how top companies assess risk, manage exposure, and seize opportunity, AMACOM, 2009. 3. CASCO, Enterprise Risk Management — Integrated Framework, The Committee of Sponsoring Organizations of the Treadway Commission, 2004. | | | |
| Number of active teaching hours | | | Other classes |
| Lectures: 3 | Practice: 2 | Other forms of classes: Independent work: 1 | |
| Teaching methods Teaching is carried out through lectures which will be presented basic of modern approach to modeling and measuring of risk. The exercises consist of presentation software tools and examples for modeling risk and independent preparation and defense of the project by the students. | | | |
| Examination methods (maximum 100 points) | | | |
| Exam prerequisites | No. of points: | Final exam | No. of points: |
| Student's activity during lectures | | oral examination | |
| practical classes/tests | | written examination | 50 |
| Seminars/homework | 50 | | |
| Project | | | |
| Other | | | |
| Grading system | | | |
| Grade | No. of points | Description | |
| 10 | 91-100 | Excellent | |
| 9 | 81-90 | Exceptionally good | |
| 8 | 71-80 | Very good | |
| 7 | 61-70 | Good | |
| 6 | 51-60 | Passing | |
| 5 | Less than 50 | Failing | |