UNIVERSITY OF PANNONIA

COURSE DATASHEET

Semester:	2016/17/1
Course:	Diagnostics and Safety critical systems
Code:	VEMKFOM264I
Responsible department:	Department of Process Engineering
Department code:	MKFO
Responsible instructor:	Dr. János Abonyi

Course objectives:

The aim of the course to familiarize students with basic concepts of safety critical systems, the methods of endeavour to safety and reliability, as well as the qualitative and quantitative reliability assessment tools. We discuss fault diagnosis methods in detail. We simulate the theoretic solutions with examples of systems that are relevant for mechatronic engineers, especially examples form the vehicle industry.

Course content:

Monte-Carlo simulations
Basic concepts of risk management
Quantitative reliability
Redundant systems
Markov processes
Graph based risk assessment techniques
Signal based fault diagnosis
Prediction based, identification based and state estimation based fault diagnosis
FMEA

Requirements, evaluation and grading:

There will be homework every week (except for the case of holidays and midterm exams). Sulotion of the homework has to be uploaded in Moodle within a week.

Assessment of the solutions will be carried out with 0, 1, ..., 10 points. 0 points: 0 pont: if the solution is not uploaded on schedule. If somebody gets points less than 10 (but more than 0) then the mistakes will be indicated in the uploaded homework documentation and there is a possibility of correction within a week. The subtracted points can be retrieved in the case of right correction.

There are going to be 2 midterm exams. Every exams consists of theoretical and practical parts. The midterm exams give the 25-25 % of the whole course completion (remaining 50 %: from the homeworks).
There is an optional corrective exam in the first week of the examination period (if somebody wants to get higher grade at the end of the course). In this case the mark of this exam is going to be the final grade (the previous midterm exam and homeworks are not considered in this case).

Assesment of the whole semester performance:

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Requirements, evaluation and grading:

[85 %; 100 %] 5;
[70 % ; 85 %[4;
[55 % ;70%[3;
[40 % ; 55 %[2;
[0 % ; 40 %[1.

Required and recommended readings:

References can be found on the Moodle learning system