Information sheet for the course
Failure Analysis and Prevention

University: *Alexander Dubček University of Trenčín*

Faculty: *Faculty of Industrial Technologies in Púchov*

Course unit code: *PP-P-36* | **Course unit title:** *Failure Analysis and Prevention*

Type of course unit: *compulsory*

Planned types, learning activities and teaching methods:
Lecture: 2 hours weekly/26 hours per semester of study; face to face
Seminar: 2 hours weekly/26 hours per semester of study; face to face
Laboratory tutorial: 0

Number of credits: *4*

Recommended semester: *the 6th semester in the 3rd year full-time form of study*
the 8th semester in the 4th year part-time form of study

Degree of study: *the 1st degree of study (Bachelor's degree)*

Course prerequisites:

Assessment methods:
This subject briefly introduces the concepts of failure analysis, root-cause analysis, and the role of failure analysis as a general engineering tool for enhancing product quality and failure prevention. The major steps of students will be to describe the current situation, analyze the problem to identify the causes, develop corrective actions and validate and verify corrective actions.
Three written solutions of students will be assessed by maximal points at 5 as following:
A – from 14 to 15 points,
B – from 12 to 13 points,
C – from 10 to 11 points,
D – from 8 to 9 points,
E – from 6 to 7 points.

Learning outcomes of the course unit:
Student has systematic and complex knowledges, knows relations between particular technological fields, uses base theories, methods and procedures used in the field. Student can analyse and assess problem, can propose solutions to prevent possible failures.

Course contents:
Introduction to failure analysis and prevention
Materials selection for failure prevention
Design review for failure analysis
Failures related to metalworking, welding, casting and heat treatment.
Tools and technique in failure analyses
Failures by creep mechanisms
Examples of failures

Recommended of required reading:
ASM Metals Handbook: Failure analysis and Prevention, 2002, Vol. 11. ISBN: 0-87170-704-7

Language: *Slovak*

Remarks:

Evaluation history:

A	B	C	D	E	FX

Lecturers: *doc. Ing. Marta Kianicová, PhD., doc. RNDr. Ján Bezecný, CSc.*

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Supervisor: *doc. Ing. Ján Vavro, PhD.*