nformation sheet for the course
Dynamical systems theory

University: *Alexander Dubček University of Trenčín*

Faculty: *Faculty of special technology*

Course unit code: *ŠST/I/4-28/d* | **Course unit title:** *Dynamical systems theory*

Type of course unit: *compulsory*

Planned types, learning activities and teaching methods:
Lectures 2 hours per week / laboratory exercises 1 hour per week face to face

Number of credits: *4*

Recommended semester: *2nd semester in the 1st year (full-time)*
4th semester in the 2nd year (part-time)

Degree of study: *II. (engineer)*

Course prerequisites: *none*

Assessment methods:
100% participation in the exercises, min. 60% attendance at lectures, properly Term paper, demonstrate knowledge of subject content in written and oral examination. Final assessment: test in a written test. Of the 100 points is required to evaluate the minimum min .: obtain (E) - 56 points, (D) - 67 points (C) - 77 points (B) - 87 points (A) - 95 points

Learning outcomes of the course unit:
The student has knowledge of cross-department focusing on application usage level to give a comprehensive overview of dynamic systems solutions of discrete and continuous dynamical systems, external description of dynamical systems using transfer function, impulse and step response, frequency response.

Course contents:
Dynamic models. Characteristics of dynamic models, distribution. Solution of continuous dynamic systems. Laplace transformation. Solution of discrete dynamic systems. Z transformation. Description of the dynamic system differential equation, transfer function. The shape of the image transmission in the form of poles and zeros in the form of time constants. Pulse function and impulse response. Transfer function and transient response. Frequency response in the plane of complex numbers. Elemental dynamic models. Status description of dynamic system.

Recommended of required reading:
GMITERKO,A. - ŠARGA,P.-HRONCOVÁ, D.: Teória dynamických systémov. Strojnícka fakulta. Technická univerzita v Košiciach. Edícia študijnej literatúry. Košice 2010. ISBN 978-80-553-0603-2.
ONDRÁČEK,O.: Signály a sústavy. Vydavateľstvo STU Bratislava, Bratislava 2008. ISBN 978-80-227-2956-7.
MORAVČÍK, J.: Matematika V. Integrálne transformácie. Edícia študijnej literatúry. Žilina 2000. ISBN 80-7100-776-5.

Language: *Slovak*

Remarks:
The subject is provided in the summer semester 2nd year part-time. Subject is required.

Evaluation history:
Total number of students being evaluated: 270

A	B	C	D	E	FX
41,46	34,15	20,73	2,44	1,22	0,00

Lecturers: *Assoc. Ing. Vladimir AC, PhD. - lecturer*
Ing. Lenka Rybičková, PhD.- instructor

Last modification: *15.4.2014*

Supervisor: *prof. Ing. Jiří Balla, CSc., guarantee of the study program "Special Mechanical Engineering Technology".*