Introduction of the First Year Ph.D. Student

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Faculty of Mechanical Engineering
Brno University of Technology

Presentation of the first-year Ph.D. students
11th October 2017
Content

- Introduction of myself
- Education and academic qualification
- Bachelor’s thesis
- Master’s thesis
- About my dissertation thesis
- Teaching and learning activities
Introduction of myself

Jiří Křupka
- A4/401
- Tribology group

My hometown
- South Moravia – Brno (377400 people in 2015)
Hobbies

- Playing keyboard
- Software programming
- 3D modelling (Solidworks, CATIA, Inventor)
- Repairing computers and cars
- Hiking
- Listening music and watching films
- Playing volleyball, tennis, table tennis, swimming
Education and academic qualification

High School

- Secondary Industrial School and High Technical School (SPŠS a VOŠ Sokolská 1, Brno)
- Specialization for Engineering - Computer graphics and Industrial design

University

- Bachelor’s degree programme: Engineering - Machine and Equipment Construction at Faculty of Mechanical Engineering, Brno
- Master’s degree programme: Mechanical Engineering - Automotive and Material Handling Engineering at Faculty of Mechanical Engineering, Brno

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 Bachelor’s Thesis

Magnetic separator

- Bachelor’s degree programme: Engineering - Machine and Equipment Construction at Faculty of Mechanical Engineering, Brno
- Supervisor: doc. Ing. Jiří Malášek Ph.D

Abstract

- The aim of this bachelor thesis is to design the structural conception of magnetic separator designated to separate small-sized industrial waste.

Magnetic separator - perpendicular orientation  Magnetic separator - parallel orientation

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Development of ventilation turbines

- Master’s degree programme: Mechanical Engineering - Automotive and Material Handling Engineering at Faculty of Mechanical Engineering, Brno
- Supervisor: doc. Ing. Jiří Malášek Ph.D

Abstract:
Technical ventilation equipment is used for continuous ventilation of residential, commercial, industrial and agricultural interiors by natural or hybrid ventilation.
Development of ventilation turbines

Mechanical regulation – Separated phases of valve movements: a) closed, b) general semi-position, c) opened

Pipes closing process (valve opening) \( n_1 < n_2 < n_3 \)

Pipes opening process (valve closing)

Where: \( n \) – rounds \( [s^{-1}] \)

Visualization of VYTOZ-EKO turbine assembly equipped with mechanical regulation

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Application Ventilator (GUI), created by myself: This software connects MATLAB and Solidworks together.

Solver panel: Ventilator 3D - model creation initialization

Final Ventilator 3D - model visualization
Dissertation Thesis
- Study of the behavior the coated plastic teeth

Supervisor
- prof. Ing. Ivan Křupka, Ph.D

Expert consultant
- Ing. Petr Šperka, Ph.D
Teaching and learning activities

Teaching

- 1K – Basics of Machine Design
- 3CD – CAD (AutoCAD, Inventor)

Learning

- 9AJ – English for Ph.D. Students
- 9MOP – Methodologies of Scientific Work
- 9VPR – Research Project and its Management
- 9EHD – Elastohydrodynamics
- 9EXT – Experimental Methods in Tribology

Summary - AutoCAD test

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Thank you for attention

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