Information sheet for the course: Rubber Technology

University: Alexander Dubček University of Trenčín

Faculty: Faculty of Industrial Technologies in Púchov

Course unit code: MI-I-PV-17C | **Course unit title:** Rubber Technology

Form, scope and method of educational activity:
Form of study: Lecture / Seminar / Laboratory tutorial
Recommended number of lessons (hours):
Weekly: 2 / 1 / 0 **During the semester:** 24 / 12 / 0 **Method of study:** attendance method

Number of credits: 4

Recommended semester: The 3rd

Degree of study: The 2nd degree of study

Course prerequisites: -

Assessment methods:
Assessment during the semester:
Summary assessment of work results during the semester = 40 points
The student takes a test on rubber calculations and prepares a semestral work in the field of rubber technology. The student will present the developed project in the exercises of the subject in the form of a presentation in front of the teacher and classmates, answer questions during the discussion.

Final assessment:
Assessment of exam results = 60 points
Completion of a written examination and an oral examination focusing on the knowledge acquired during the semester

Grading scale:
Grade A: 91 – 100 points
Grade B: 81 – 90 points
Grade C: 71 – 80 points
Grade D: 61 – 70 points
Grade E: 55 – 60 points
Grade FX: less than 55 points

Learning outcomes of the course unit:
The student can orient himself in the issues of process technology in the rubber industry.

Course contents:
Basic concepts and history of rubber technology.
Composition of rubber compounds - characterization of rubber additives, effect in the mixture.
Preparation of rubber mixtures - dispersion and homogenization of components. Machines and equipment for the preparation of rubber mixtures.
Extrusion of rubber compounds. Rolling of rubber compounds.
Car tires - distribution, construction, basic types, material composition.
Technology of production of car tires - production of semi-finished products, ready-made. Reinforcing materials in car tires and other rubber products. Rubberizing of reinforcing materials. Pressing and vulcanization. Output control of finished products.
Conveyor belts - division, construction, basic types, material composition, production. Floor coverings - production technology, material composition of floor coverings.
Hoses - types and construction, material composition, production technology.
Inner tubes and vulcanization membranes - properties, material composition, production technology.
Technical rubber - classification, examples of use, production methods.
Methods of recycling rubber waste, use of rubber crumb and regenerated material.

Recommended of required reading:
DUCHÁČEK, V.: Polymery - výroba, vlastnosti, zpracování, použití. 2. vydanie. Praha: Vysoká škola chemicko-technologická v Praze, 280 s., 2006. ISBN 80-7080-617-6.

KYSELÁ, G., HUDEC, I., ALEXY, P.: Výroba a spracovanie kaučukov a gumy. 1.vydanie. Bratislava: Slovenská technická univerzita v Bratislave, 269 s., 2010. ISBN 978-80-227-3324-3.
ONDRUŠOVÁ, D., PAJTAŠOVÁ, M.: Rubber components and their influence on rubber proporties and enviromental aspects of production. 1. edition. Kraków: Spolok Slovákov v Poľsku, 166 p., 2011. ISBN 978-83-7490-385-1.
OLŠOVSKÝ, M.: Kaučuky. Výroba-vlastnosti-použitie. Trenčín: TnUAD, 2012.
OLŠOVSKÝ, M. a kol.: Gumárenské výrobky a výroby. Trenčín: TnUAD, 2004.
PREKOP, Š. a kol.: Gumárska technológia II. Trenčín: GC-tech a TnUAD, 2003.
DUCHÁČEK, V., HRDLIČKA, Z.: Gumárenské suroviny a jejich zpravovávaní. Praha: VŠCHT, 2009.
E-learning TnUAD.

Language:
English

Remarks:
Compulsory elective course / Profile course

Evaluation history: 0
Total number of graded students:

A	B	C	D	E	FX
0.0	0.0	0.0	0.0	0.0	0.0

Lecturers: prof. Ing. Darina Ondrušová, PhD., Ing. Slavomíra Božeková, PhD., Ing. Ivan Labaj, PhD.,

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Supervisor: : prof. RNDr. Mariana Pajtášová, PhD.