Information sheet for the course
Organic Chemistry of Materials

University: *Alexander Dubček University of Trenčín*	
Faculty: *Faculty of Industrial Technologies in Púchov*	
Course unit code: *MI-P-13*	**Course unit title:** *Organic Chemistry of Materials*
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: 2 hours weekly/26 hours per semester of study; face to face*	
Number of credits: *6*	
Recommended semester: *2nd semester in the 1st year full-time* *2nd semester in the 1st year part-time*	
Degree of study: *the 1st degree of study (Bachelor's degree)*	
Course prerequisites: *none*	
Assessment methods: *Laboratory tutorial during the semester: control tests, continuous valuation of each task (5 tasks), valuation of protocols – it is necessary to obtain minimally 50 % of point valuation.* *Final valuation (examination): writing part – 36 points from all 60 points, oral part – 25 points from all 40 points. Summary of both parts of examination must be 61 points. It is necessary to obtain minimally 90 points for A valuation, 80 points for B valuation, 75 points for C valuation, 68 points for D valuation and 61 points for E valuation.*	
Learning outcomes of the course unit: *Student has a systematic and complex knowledge in given area. Student knows the connections and relations between the individual reactions. Student understands the basic theories, methods and synthetic procedures. At Laboratory tutorial from organic chemistry of materials, student can work in organic laboratory at adequate level and student gets construction of reaction apparatuses and laboratory techniques under control. Simply synthetic tasks continue the theoretic knowledge which student obtained at Lecturers of course concerning the Organic chemistry of materials.*	
Course contents: *1. Basic terms: chemical bond, polarity and polarizability.* *2. Structure of organic compounds, electron effects.* *3. Saturated hydrocarbons – substitution radical reactions.* *4. Unsaturated hydrocarbons, reactions: addition, radical, electrophilic, nucleophilic.* *5. Aromatic hydrocarbons, electrophilic substitution reactions.* *6. Halogen derivatives, substitution nucleophilic reactions, elimination reactions.* *7. Hydroxyderivatives and ethers.* *8. Aldehydes and ketones.* *9. Carboxylic acids, acidity and alkalinity of organic compounds.* *10. Nitrogen compounds: nitro and nitroso derivatives.* *11. Amines and diamines.* *12. Diazonium salts, preparations and properties.* *Initial laboratory tutorial, work safety, laboratory tutorial programme, conditions for getting of credits.* *1. Crystallization.* *2. Atmospheric distillation.*	

3. Extraction of solid substances (purification of natural polymers and their derivates).
4. Vacuum distillation.
5. Condensation of benzaldehyde with acetone in alkaline medium (crystallization). Preparation of acetylsalicylic acid (crystallization) or copulation reactions (synthesis of phenylazo-2-naphtol (diazotation)).

Recommended of required reading:

1. J. Kováč, Š. Kováč, Ľ. Fišera, A. Krutošíková: Organická chémia 1,2. 1. vyd. Alfa, Bratislava, 1992. 1292 s. ISBN 80-05-00766-3.
2. W. H. Brown: Organic Chemistry. 1.Ed. Saunders College Publishing, New York, 1995. 1115 p. ISBN 0-03-098972-8.
3. K. Weissermel, H.-J. Arpe: Industrial Organic Chemistry, VCH, Weinheim, 2003, ISBN 3-527-26995-9.
4. J. Svoboda: Organická chemie I, 1. vyd. VŠCHT, Praha, 2007. 310 s. ISBN 97-88-070-80561-9.
5. L. Štibrányi a kol.: Laboratórne cvičenie z organickej chémie I. 1 vyd. STU, Bratislava, 1994. 100 s. ISBN 80-227-0827-5.
6. L. Štibrányi a kol.: Laboratórne cvičenie z organickej chémie II. 1 vyd. STU, Bratislava, 1996. 155 s. ISBN 80-227-0578-5.

Language: *Slovak*

Remarks: *The course is in summer semester.*

Evaluation history:
Number of students: *0*

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

Lecturers: *doc. Ing. Petra Skalková, PhD., Ing. Vladimíra Krmelová, PhD., RNDr. Viera Mazíková, PhD.*

Last modification: *31.03.2014*

Supervisor: *prof. Ing. Darina Ondrušová, PhD.*