

## Information sheet for the course Modification of Polymeric Systems

<b>University:</b> <i>Alexander Dubček University of Trenčín</i>	
<b>Faculty:</b> <i>Faculty of Industrial Technologies in Púchov</i>	
<b>Course unit code:</b> <i>MI-I-PV-16C</i>	<b>Course unit title:</b> <i>Modification of Polymeric Systems</i>
<b>Type of course unit:</b> <i>optional</i>	
<b>Planned types, learning activities and teaching methods:</b> <i>Lecture: 2 hours weekly/26 hours per semester of study; face to face</i> <i>Seminar: 1 hours weekly/13 hours per semester of study; face to face</i> <i>Laboratory tutorial: 0</i>	
<b>Number of credits:</b> <i>3</i>	
<b>Recommended semester:</b> <i>3<sup>rd</sup> semester in the 2<sup>nd</sup> year full-time</i> <i>5<sup>th</sup> semester in the 3<sup>rd</sup> year part-time</i>	
<b>Degree of study:</b> <i>the 2<sup>nd</sup> degree of study (Engineer's degree)</i>	
<b>Course prerequisites:</b> <i>none</i>	
<b>Assessment methods:</b> <i>Final valuation (examination): writing part – 22 points from all 40 points. It is necessary to obtain minimally 37 points for A valuation, 33 points for B valuation, 29 points for C valuation, 26 points for D valuation and 22 points for E valuation.</i>	
<b>Learning outcomes of the course unit:</b> <i>Student has a complex knowledge as well as a survey about modification methods of polymeric systems and possibility of preparation of modified polymers by many methods (utilization of reactive groups in polymer or implementation of reactive groups into the polymer, transfer reactions, mechanical-chemical and radiation methods etc.), with possibility of preparation of grafted and alternating copolymers using the implementation of reactive groups into the polymer.</i>	
<b>Course contents:</b> <ol style="list-style-type: none"> <li><i>1. Modification reaction of natural polymers.</i></li> <li><i>2. Modification of synthetic polymers, main distribution and principles.</i></li> <li><i>3. Methods of modification of polymeric materials properties during the process of their production.</i></li> <li><i>4. Methods of modification of polymeric materials as well as the final products.</i></li> <li><i>5. Polymer analogous reactions – definition, utilization, the most important types and applications.</i></li> <li><i>6. Modification of polymers in polymer-monomer or polymer-polymer systems in which the one from components is rubber, utilization of occluded radicals.</i></li> <li><i>7. Modification of vulcanizates.</i></li> <li><i>8. Types of initiators for preparation of hybrid copolymers.</i></li> <li><i>9. Technologies used for the modification of polymeric systems.</i></li> <li><i>10. Polymeric blends.</i></li> <li><i>11. Properties of polymer analogs.</i></li> <li><i>12. Application of modified polymers.</i></li> </ol>	

**Recommended of required reading:**

1. ŠTAUDNER, E.: *Modifikácia polymérov*. SVŠT Bratislava, 1981.
2. Skalková, P.: *Modifikácia polymérnych systémov, (interný učebný text)*. FPT Púchov, 2009.
3. Meister, J.: *Polymer Modification: Principles, Techniques, and Applications*, CRC Press, Marcel Dekker Inc., USA, 2000, ISBN 97-808-247-0078-2.
4. Swift, G., Carraher, Ch.E., Bowman, Ch.N.: *Polymer Modification*, Plenum Press, USA, 1997, ISBN 97-803-064-5714-2.

**Language:** *Slovak***Remarks:** *The course is in summer semester.***Evaluation history:**

Number of students: 6

A	B	C	D	E	FX
0.0	50.0	16.67	0.0	33.33	0.0

**Lecturers:** *doc. Ing. Petra Skalková, PhD., prof. RNDr. Mariana Pajtášová, PhD., prof. Ing. Darina Ondrušová, PhD.***Last modification:** *31.03.2014***Supervisor:** *prof. Ing. Darina Ondrušová, PhD.*