**Syllabus**

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| **Basic data of the subject** |
| **Academic unit:** | **Faculty of Engineering and Informatics** |
| **Title of the subject:** | **Polymers, their production and processing** |
| **Level:** | **Master** |
| **Course Status:** | **Elective** |
| **Year of studies:** | **I** |
| **Number of hours per week:** | **4** |
| **Value of Credits - ECTS:** | **6** |
| **Time / location:** |  |
| **Course lecturer:** | **Prof.Asoc.dr. Milihate Aliu** |
| **Contact details:**  | **Milihate.aliu@ushaf.net** |
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| **Course Description** | *This course will focus on the basics of polymer science, with particular emphasis on processing and processing of polymer materials, properties of plastics, and their application* |
| **Objectives of the course:** | *This subject will focus on the basics of polymer science, with particular emphasis on production and processing of polymer materials, properties of plastics, and their application* |
| **Expected learning outcomes:** | *Upon successful completion of this subject, student will be able to:** *recognizes basic chemical and engineering processes for the processing of polymer materials.*
* *classify polymers and identify their physical characteristics.*
* *understand the polymer processing operations and the choice of operation depending on the material and end product requirements*
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| **Contribution to the student load (which must correspond with learning outcomes)** |
| **Activity** | **Hour** | **Day/Week** | **In total** |
| Lectures with lab tutorials  | 4 | 15 | 60 |
| Internship |   |   |   |
| Contacts with teacher / consultations | 2 | 4 | 8 |
| Field exercises |   |   |   |
| Midterm, seminars and projects. |   |  |  |
| Homework |   |   |   |
| Self-learning time student (at the library or at home) | 4 | 15 | 60 |
| Final preparation for the exam | 20 |  | 20 |
| Time spent on evaluation (tests, quiz and final exam) | 2 |  | 2 |
| Projects and presentations. |  |  |  |
| **Total** |  |  | **150** |
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| **Teaching methodology:** | *Lectures combined with lab work* |
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| **Assessment methods:** | *Final Exam 100% of the General Evaluation* |
| **Literature** |
| **Basic Literature:**  | Donald G. Baird, Dimitris I. Collias, Polymer processing: principles and design, Wiley, |
| **Additional Literature:**  | J.R. Fried, “Polymer Science and Technology”, 2nd Ed. Prentice Hall, |
| **The ratio of theory and practice** | *60% theory with numerical exercises and 40% laboratory work.* |

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| **Designed learning plan** |
| **Week:** | **Lectures and exercises to be held** |
| **Week one:** | *Introduction to materials* |
| **Week two:** | *Types and structure of polymers* |
| **Week three:** | *Thermal properties* |
| **Week four:** | *Methods of production / processing of plastics products* |
| **Week five:** | *Flow characteristics after melting* |
| **Week six:** | *Extrusioni* |
| **Week seven:** | *injection* |
| **Week eight:** | *Summaries and consultations* |
| **Week nine:** | *Lab lab work* |
| **Week ten:** | *Other Processes of Polymer Processing* |
| **Week eleven:** | *Viskoelasticiteti* |
| **Week twelve:** | *Failure and chemical resistance* |
| **Week thirteen:** | *Fatigue of materials* |
| **Week fourteen:** | *Recycling of polymers and preserving the environment* |
| **Week fifteen:** | *Prepare for exam* |

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| **Academic policies and rules of conduct** |
| *Regular attendance, keeping calm and active engagement in dialogue during lectures and exercises is mandatory.* |