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| Course name                                   | Technology of glass and the science of materials  |
| Entity running the course                     | Faculty of Ceramics and Glass, Department of Glass  |
| Entity for which the course has been prepared | Department of Glass   |
| Course type                                   | Core course, compulsory course.   |
| Year of study / semester;<br>Type of studies  | Year 1 /semester 1, 2/; full time bachelor's degree studies   |
| ECTS credits                                  | 1   |
| Academic tutor                                | M.Sc. Andrzej Blusz   |
| Aim of the course                             | Acquisition of knowledge of glass structure and properties. Introduction of the methods for fritting of glass batch, methods for product moulding and annealing. Decorating of glass with hot methods and the techniques of decorating after the process of annealing. Characteristics of glass raw materials, abrasives, materials for glass decorating and the materials used in a stained glass industry.<br>Introduction of the basic principles of fusing and slumping. Introduction of the materials used for modeling and making moulds. Getting familiar with the general characteristics of silica and chamotte materials. |
| Prerequisites                                 | Basic knowledge of chemistry and physics.   |
| Learning outcomes:                            |   |
| – knowledge                                   | The student has knowledge in the area of glass technology, glass properties, glass raw materials, methods for moulding, annealing in tunnel furnaces and glass chambers. They know the methods of decoration and production of artistic and utility glass items.  |
| – skills                                      | The student distinguishes between glass raw materials, staining materials, and also the materials used in the stained glass industry and in fusing. The student is familiar with the practical methods of finishing glass products and their decoration after the process of annealing, along with the methods of bonding the glass and new trends in manufacturing the artistic and utility glass.   |
| – personal and social competence              | The student can freely talk about and present the previously prepared material concerning the execution analysis of the artistic and utility glass. Owing to the classes in a stained glass studio and glass manufacturing plants, the student is a good team member.   |
| Course content                                | Understanding the essence of glass, glass properties, ways of preparing glass batch, methods for moulding and annealing of products.<br>Introduction of the methods for glass decoration with the use of hot techniques and after the process of annealing, - chemical polishing, sandblasting, painting, glazing, iridescence, metallization.<br>Familiarization with the adhesives for glass and methods of fusing and slumping.<br>Practical use of knowledge of the coefficient of linear glass expansion.<br>Characteristics of silica and chamotte materials.   |
| Course form and number of course hours        | 15 hours / semestr  |
| Assessment methods and criteria               | 60% oral exam, 20% paper, 20% active participation in classes   |
| Assessment type                               | Semester 1 – graded pass.<br>Semester 2 – graded pass.  |
| Literature                                    | Europaisches Glas O.Drahotowa, Urządzenia mechaniczne w przemyśle szklarskim / <i>Mechanical devices in the glass industry</i> / L.Mejer, Technologia zdobienia szkła / <i>Technology of decorating glass</i> / W.Nowotny, Piece szklarskie / <i>Glass kilns</i> / A.Hilgertner, Technologia Szkła / <i>Glass Technology</i> / ISIC B.Ziemia, Technologia szkieł klejonych / <i>Technology of bonded glass</i> / ISIC A.Blusz, Das Glas und die Jahrtausende<br>Finnisches Glasmuseum, Jaroslav Svoboda Sklo , Technologia szkieł gospodarczych / <i>Technology of industrial glass</i> /. Nowotny.                                 |
| Teaching aids                                 | Lectures, visits to glass plants.   |
| Language of instruction                       | Polish  |