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| **STUDY MODULE DESCRIPTION FORM** | | | | | | | | | | | | | | | |
| Name of the module/subject | | | | | | | | | | | | | Code | | |
| Machine vision in manufacturing technology | | | | | | | | | | | | | 1011101461011115676 | | |
| Field of study | | | | | | | | | | | Profile of study  (general academic, practical) | | | | Year /Semester |
| Production Engineering and Management - Erasmus+ | | | | | | | | | | | - | | | | - |
| Elective path/specialty | | | | | | | | | | | Subject offered in: | | | | Course (compulsory, elective) |
| **-** | | | | | | | | | | | **English** | | | | **elective** |
| Cycle of study: | | | | | | | | Form of study (full-time,part-time) | | | | | | | |
| First-cycle studies | | | | | | | | part-time | | | | | | | |
| No. of hours | | | | | | | | | | | | | | | No. of credits |
| Lecture: | | **5** | Classes: | | **-** | Laboratory: |  | | | Project/seminars: | | **10** | | | 6 |
| Status of the course in the study program (Basic, major, other) | | | | | | | | | (university-wide, from another field) | | | | | | |
| **-** | | | | | | | | | **-** | | | | | | |
| Education areas and fields of science and art | | | | | | | | | | | | | | ECTS distribution (number and %) | |
|  | | | | | | | | | | | | | |  | |
| Responsible for subject / lecturer:  Mr. Remigiusz LABUDZKI, PhD  email: remigiusz.labudzki@put.poznan.pl  tel. +48 61 6652051  Faculty of Mechanical Engineering and Management  Piotrowo Street 3, 60-965 Poznań | | | | | | | |  | | | | | | | |
| Prerequisites in terms of knowledge, skills and social competencies: | | | | | | | | | | | | | | | |
| 1 | Knowledge | | | Student has a fundamental knowledge in the field of manufacturing technology | | | | | | | | | | | |
| 2 | Skills | | | Student understands and is able to apply the parameters of manufacturing process and systems | | | | | | | | | | | |
| 3 | **Social competencies** | | | Student understanding of the need to learn and acquire new knowledge | | | | | | | | | | | |
| Assumptions and objectives of the course:  Students become familiar with methodology and technique applied for designing of machine vision system in production | | | | | | | | | | | | | | | |
| Study outcomes and reference to the educational results for a field of study | | | | | | | | | | | | | | | |
| Knowledge: | | | | | | | | | | | | | | | |
| 1. Students have a basic knowledge of machine vision system in production  2. Student characterizes and explains the role of the machine vision system in production  3. Student knows methods and tools for developing manufacturing structures | | | | | | | | | | | | | | | |
| Skills: | | | | | | | | | | | | | | | |
| 1. Students are able to identify and describe basics parts of machine vision systems  2. Students are able to identify and describe demand characteristic of the product  3. Students are able to use effectively informatics tools to identify characteristics of the product | | | | | | | | | | | | | | | |
| Social competencies: | | | | | | | | | | | | | | | |
| 1. Student is aware of the need for lifelong learning; inspire and organize the learning process of others in the coming within studied concerning issues - [K1A\_K01]  2. Students are willing to cooperate and work in teams to resolve contained within the subject being studied problems - [K1A\_K03]  3. Students are able to see the cause-and-effect relationships in the implementation of the set objectives and importance tasks - [K1A\_K04]  4. Students are able to plan and manage in an entrepreneurial manner - [K1A\_K06] | | | | | | | | | | | | | | | |

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| Assessment methods of study outcomes | | |
| presentations, own project of machine vision system, virtual reality relase to machine vision system, | | |
| Course description | | |
| The production process and its surroundings. Basic concepts of the machine vision in production process. Elements of the machine vision system. Relations of characteristics product to quality control. Criteria for the identification characteristics of the product. Basic technical demand for elements of the machine vision system. Technical and organizational characteristics of basic types of manufacturing process. Selection and setting of the technical parameters of the machine vision system. Construction recognition algorithm. Virtual reality presentation of designed machine vision system. | | |
| Basic bibliography:  1. Alexander Hornberrg, Handbook of Machine Vision. Wiley-VCH, July 2006 | | |
| Additional bibliography:  1. Bruce Batchelor, Machine Vision Handbook. Springer, 2012 | | |
| Result of average student's workload | | |
| Activity | | Time (working hours) |
| 1. Participation in lectures  2. Participation in projects  3. Literature studies  4. Preparation for exam | | 5  10  10  5 |
| Student’s workload | | |
| Source of workload | hours | ECTS |
| Total workload | 30 | 6 |