

| STUDY MODULE DESCRIPTION FORM | | |
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| Name of the module/subject Advanced microprocessor systems in automation | | Code 1010335121010337238 |
| Field of study Control Engineering and Robotics | Profile of study (general academic, practical) (brak) | Year /Semester 1 / 2 |
| Elective path/specialty - | Subject offered in: polish | Course (compulsory, elective) elective |
| Cycle of study: Second-cycle studies | Form of study (full-time, part-time) part-time | |
| No. of hours Lecture: 15 Classes: - Laboratory: 15 Project/seminars: - | | No. of credits 4 |
| Status of the course in the study program (Basic, major, other) (brak) | | (university-wide, from another field) (brak) |
| Education areas and fields of science and art technical sciences | | ECTS distribution (number and %) 4 100% |
| Responsible for subject / lecturer: dr inż. Tomasz Pajchrowski email: tomasz.pajchrowski@put.poznan.pl tel. 61 6652385 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań | | |
| Prerequisites in terms of knowledge, skills and social competencies: | | |
| 1 | Knowledge | He has ordered and expanded knowledge of the methods of analysis and design of control systems He has specialized expertise in the field of remote systems, distributed real-time systems and networking techniques |
| 2 | Skills | Able to critically use the information literature, databases, and other sources, has the skills of self-education in order to improve and upgrade professional skills Able to develop detailed documentation, analyze the results and give a presentation on the implementation of the tasks of design and research Able to apply the principles of occupational health and safety appropriate for the job automation and robotics |
| 3 | Social competencies | is aware of and understands the importance and impact of non-technical aspects of engineering including its impact on the environment, and hence the responsibility for decisions |
| Assumptions and objectives of the course: -He aim of the course is to familiarize students with current microprocessor systems and peripheral systems used in industrial electronics systems, especially in control systems, control and measuring | | |
| Study outcomes and reference to the educational results for a field of study | | |
| Knowledge: | | |
| 1. K_W04+++ - [K_W04+++] 2. K_W07++ - [K_W07++] 3. K_W09+ - [K_W09+] | | |
| Skills: | | |
| 1. K_U08+++ - [K_U08+++] 2. K_U11++ - [K_U11++] 3. K_U13++ - [K_U13++] | | |
| Social competencies: | | |
| 1. K_K04++ - [K_K04++] | | |
| Assessment methods of study outcomes | | |

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| -Lecture: written examination (theoretical knowledge test) in the field of programming content. Laboratory: examining the practical skills of programming microprocessor systems, evaluation of tests and reports | | |
| Course description | | |
| -Lecture. Architecture for ARM microcontrollers and digital signal processors for embedded system control and data acquisition. Selected issues concerning the A / D and D / A programming method selected microprocessor systems implementation in microprocessor systems selected tasks: filters and regulators, coordinate transformation. Analysis of selected practical implementation - loggers, industrial process control systems, control of DC and AC motors. . Laboratory. Programming a microcontroller with ARM architecture high-level language and simple control of propulsion systems with them. | | |
| Basic bibliography: | | |
| 1. Steven W. Smith: Cyfrowe przetwarzanie sygnałów. Wyd. BTC, Warszawa 2007 2. Dokumentacja techniczna dotycząca mikrokontrolerów o architekturze ARM typu Cortex | | |
| Additional bibliography: | | |
| 1. Dąbrowski A., (red.), Przetwarzanie sygnałów przy użyciu procesorów sygnałowych, Wyd. Politechniki Poznańskiej, Poznań 2000 | | |
| Result of average student's workload | | |
| Activity | Time (working hours) | |
| 1. Participation in lecture classes | 15 | |
| 2. Participation in laboratory activities | 15 | |
| 3. Participation in consultation | 8 | |
| 4. Preparation for laboratory | 20 | |
| 5. Develop reports | 20 | |
| 6. Preparing for the passing / exam | 20 | |
| 7. Participation in the passing / exam | 2 | |
| Student's workload | | |
| Source of workload | hours | ECTS |
| Total workload | 100 | 4 |
| Contact hours | 40 | 1 |
| Practical activities | 35 | 1 |