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| **Course code** | CC6 |
| **Type and description** | TCS core curriculum  |
| **ECTS credit** | 1 |
| **Course name** | **General-purpose computing on graphics processing units** |
| **Course name in Polish** | **Obliczenia na procesorach graficznych** |
| **Language of instruction** | English |
| **Course level** | 8 PRK |
| **Course coordinator**  | **dr hab. inż. Piotr Napieralski** |
| **Course instructors** | **dr hab. inż. Piotr Napieralski** |
| **Delivery methods and course duration** |

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|  | **Lecture** | **Tutorials** | **Laboratory** | **Project** | **Seminar** | **Other** | **Total of teaching hours during semester** |
| Contact hours |  |  |  | 15 |  |  | 15 |
| E-learning | No | No | No | No | No | No |  |
| Assessment criteria (weightage) |  |  |  | 100% |  |  |  |

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| **Course objective** | Understanding and ability to use general-purpose computing on graphics processing units |
| **Learning outcomes** | Knowledge and ability to use general-purpose computing on graphics processing units |
| **Assessment methods** | Evaluation of project |
| **Prerequisites** | Knowledge of C ++, Knowledge of data structures |
| **Course content with delivery methods** | In this course will be present varieties of ways how to build a powerful high-performance system. Each uses different hardware architecture and software application interface (API) to achieve fast and accurate computing. Using General-Purpose Processing Units (GPGPU) is a trend in computer science that uses the GPU to perform the computations rather than CPU. Students during the course will propose their own solution to the problem related to their research topics in terms of processing on graphic processors.  |
| **Basic reference materials** | Hubert Nguyen, GPU Gems 3: Programming Techniques for High-Performance Graphics and General-Purpose Computation Jason Sanders and Edward Kandrot, CUDA by Example: An Introduction to General-Purpose GPU Programming |
| **Other reference materials** | Shigeyoshi Tsutsui and Pierre Collet, Massively Parallel Evolutionary Computation on GPGPUs (Natural Computing Series) |
| **Average student workload outside classroom** | 10 h |
| **Comments** |  |
| **Last update** |  |