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| **Course code** | CC1 |
| **Type and description** | TCS core curriculum  |
| **ECTS credit** | 1 |
| **Course name** | **Research methodology** |
| **Course name in Polish** | **Metodyka pracy naukowej** |
| **Language of instruction** | English |
| **Course level** | 8 PRK |
| **Course coordinator**  | **prof. dr hab. inż Andrzej Materka** |
| **Course instructors** | **prof. dr hab. inż Andrzej Materka** |
| **Delivery methods and course duration** |

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|  | **Lecture** | **Tutorials** | **Laboratory** | **Project** | **Seminar** | **Other** | **Total of teaching hours during semester** |
| Contact hours | 3 |  |  |  | 12 |  | 15 |
| E-learning | No | No | No | No | No | No |  |
| Assessment criteria (weightage) | 20% |  |  |  | 80% |  |  |

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| **Course objective** | Understanding the nature of scientific research and acquiring the ability to apply research methods. |
| **Learning outcomes** | 1) Knowledge on the principles of methodology for conducting research and scientific projects.2) Ability to acquire information from various sources, their integration, interpretation and critical evaluation, as well as concluding and formulating opinions, in particular when formulating and solving tasks related to modeling and designing elements, systems and manufacturing process.3) Ability to assess the suitability and the feasibility of new achievements in the field of materials, elements, design methods and manufacturing for the design and manufacture of electronic, telecommunications and information processing systems.4) Ability to formulate and test hypotheses related to selected issues in the field. |
| **Assessment methods** | Evaluation of research work on a given topic, reports, presentations and activity during seminar |
| **Prerequisites** |  |
| **Course content with delivery methods** | Lecture and seminarDiscussion of selected issues:1. Introduction to the methodology of scientific research2. Science and scientific disciplines3. Methods of acquiring knowledge4. Research strategy, scientific method5. Troubleshooting6. Methods of conducting research7. Planning a scientific experiment8. Work in teams9. Ethics of scientific researchOutside classroom:1. A critical review of the literature2. The structure of a scientific article3. Presentation of the research report |
| **Basic reference materials** | A. Materka, lecture notes available from <http://amaterka.pl/dydaktyka>K. L. Turabian, A Manual for Writers of Research Papers, Theses, and Dissertations, 7th edition, The University of Chicago Press, 2007 |
| **Other reference materials** | Journal papers collected by the students |
| **Average student workload outside classroom** | 10 h |
| **Comments** |  |
| **Last update** |  |