## 1.3. Module/ course form

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| To be completed by Course Team | Module name :  **Air Quality Control** | | | | | | Module code: | | |
| Course name:  **Air Quality Control** | | | | | | Course code: | | |
| Faculty:  **Institute of Technology** | | | | | | | | |
| Field of study:  **Environmental Protection** | | | | | | | | |
| Mode of study :  **Stationary** | | | Learning profile:  **practical** | | | Speciality:  Ecological Engineering | | |
| Year/ semester: | | | Module/ course status: | | | Module/ course language:  *English* | | |
| Type of classes | Lecture | lessons | | lab | project | | tutorial | other (please specify) |
| Course load | **15** |  | |  |  | |  | **15** |

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| Module/ course coordinator | prof. Waldemar Wardencki |
| Lecturer | prof. Waldemar Wardencki |
| Module/ course objectives | The course presents the basic processes used in air quality control and provides the knowledge on general rules for choosing and projecting the devices used for control of gaseous and particular matter pollutants in air. |
| Entry requirements | Basic knowledge of chemistry and physics  Knowledge of environmental chemistry |

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| **LEARNING OUTCOME** | | |
| Nr | LEARNING OUTCOME DESCRIPTION | Learning outcome reference |
| 1 | To understand the sources, forms and effects of air pollutants |  |
| 2 | To get knowledge for understanding the basic processes used to control air pollution |  |
| 3 | To know the basic characteristics of particular devices applied for air pollution control |  |
| 4 | To know how to choose the devices for control of gaseous and particulate matter as air pollution |  |

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| **CURRICULUM CONTENTS** |
| **Lecture** |
| The course covers the selected topics of air pollution engineering, providing the basic knowledge of designing the devices for control of air pollution.  At the beginning, the lectures deal with the basic s of atmospheric chemistry and physics of typical air pollution, including their sources, emission mechanisms and dispersion. Next, the most important air pollutants, i.e. particulate matter, sulphur and nitrogen gases and organic pollutants are discussed in detail. The emphasis is focused on the control devices, their theory and practice, together with selection of relevant device for particulate purpose. Other topics present pollutants emitted from waste incinerators and systems for their removal, control of indoor air pollution and sources and effects of noise, including active and passive control. |
| Seminar |
| Preparation and presentation of the selected problems with air quality control (different pollutants and their effects, principle of operation of devices used for air quality control, characteristics of different devices for controlling particular pollutants) |

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| Basic literature | 1. J.H. Seinfeld, S.N. Pandis, Atmospheric chemistry and physics, John Wiley@ Sons, Inc. Hoboken, New Jersey, 2006 2. M.Z. Jacobsen, Atmospheric pollution. History, science, and regulation, Cambridge University Press, Cambridge, 2002 3. S.E. Manaham, Environmental science and technology. A sustainable approach to green science and technology, Taylor@Francis, Boca Raton, 2007 |
| Additional literature |  |

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| Teaching methods | | Lecturing  Discussion after presentations | |
| Assessment metod | | | Learning outcome number |
| Evaluation of presentation during seminars, exam | | | 1,2,3,4 |
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| Form and terms of an exam | Written exam, 8 problems related with the subject | | |

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| **STUDENT WORKLOAD** | |
|  | Number of hours |
| Participation in lectures | 15 |
| Independent study of lecture topics | 20 |
| Participation in tutorials, labs, projects and seminars | 15 |
| Independent preparation for tutorials\* | 20 |
| Preparation of projects/essays/etc. \* |  |
| Preparation/ independent study for exams | 22 |
| Participation during consultation hours | 2 |
| Rother |  |
| **TOTAL student workload in hours** | 94 |
| **Number of ECTS credit per course unit** | **4** |
| Number of ECTS credit associated with practical classes | **1,4** |
| Number of ECTS for classes that require direct participation of professors | **1,3** |