Writing scientific papers, 10 h, 2 ECTS

The aim of a course is to improve knowledge about ways of presenting and enhancing the validity of scientific results in different kinds of scientific papers such as:

- → lab reports by presenting methods used to generate the data, and related conclusions
- → literature review articles by summarizing and synthesizing research
- → peer-reviewed journal papers by presenting primary research

The practice of critical writing puts the emphasis on precision in defining key facets of the methodology and synthesis, on clarity in formulating scientific concepts and methods, on objectivity based on scientific evidence with avoiding plagiarism. This is an opportunity to acquire experience in scientific writing in the so-called AIMRaD format (Abstract, Introduction, Materials and methods, Results and Discussion) improving participant's skills of:

- → explaining assumed hypothesis in the frames of previous research
- → summarizing and synthesizing the most significant information about a topic, related data and source
- → describing methods for testing a hypothesis
- → presenting the data in a clear way (e.g. clear table form or figure)
- → consideration of a hypothesis relevance based on acquired data
- → using reference management software (such as Mendeley, EndNote, or Zotero) and Academic Social Networking Services (ASNS)

Furthermore, the course involves practice of literature review as a critical discussion of published information in a particular field of science within a time period, and constructing descriptive and informative abstracts with formulating titles and incorporated keywords. The learners will understand the significance of development of writing strategies that can be gained by participation in the peer review process and by a scientific expert's assessment. They will know what to do with the feedback to improve their writing skills, how to read a review and react.

M.2. Module's title: Writing scientific papers

Fields of science: chemistry; electronics, telecommunications and informatics; civil and environmental engineering

The module's aim is to enhance the highest ethics standards and teach skills of scientific writing.

<u>Learning outcomes and participant's acquired knowledge</u>:

- → knowledge of different kinds of scientific papers: lab reports, literature review articles, peer-reviewed journal papers
- → knowledge about a structure of scientific article, creating sections, subsections and summary of investigation
- → modern technology in scientific writing practice
- → critical thinking about research results
- → self-criticism of scientific writing
- → understanding peer review process and its significance in science