Course: Philosophy, research methodology with elements of logic

Teaching hours: 30h

Prerequisites: The course is primarily open to all PhD students at Gdansk University of Technology.
This course is compulsory for PhD students assigned to Economics&Finance and Management&Quality tracks at Doctoral School of GUT

Course outline

Content

The course is designed to presents fundamental aspects of theory of science and research methods applicable to the various field of advanced studies. It presents general concepts of philosophy of science, indicates both qualitatively and quantitatively oriented methods of research. It provides knowledge on formulating research questions and relevant problems/hypotheses for conducting an independent research assignment.
It is also aimed at showing the students principles of logical reasoning and presenting logical arguments. During this course students should gain ability to choose, justify, apply and present methods of research more adequate for their work.

General topics coverage:

1. Methodology and philosophy of science: basic concepts, scope, and objectives.
2. Types of knowledge and research.
3. Modes of reasoning: induction, deduction, abduction.
4. Defining and definitions.
5. Scientific laws and regularities.
6. Positivism and falsificationism.
7. Scientific theories and models.
8. Types of scientific explanation.
9. Dogmas of empiricism and instrumentalism.
10. Scientific paradigms, research programmes, and methodological anarchism.
11. New experimentalism.
12. Theory and explanation in social sciences.
13. Methodological individualism, interpretive sciences and theory of rational agency.
14. Practical sciences and design disciplines.
15. Systems theory as general methodology of design sciences.
16. Elements of logic including basic concepts of inferences and arguments, deductive versus inductive logic, statements versus propositions,

Teaching mode
There will be 30 hours of lectures, to be completed during the first semesters of PhD programme. The teaching method is basically lecture combined with active discussion and students participation. During the course students will be asked to think critically, analyse and interpret the results of their work. The course is entirely delivered in English.

Examination
As part of the examination/final grade the students will be obliged to answer questions that will be discussed during lectures. The final examination is a written essay (details to be agreed with the professor responsible for the course).

Fundamental readings:

1. Benton, T., Craib, I. (2010). *Philosophy of Social Science. The Philosophical Foundations of Social Thought*. New York: Palgrave Macmillan.
2. Blaug, M. (1992). *The Methodology of Economics: Or, how Economists Explain*. Cambridge: Cambridge University Press.
3. Bunge, M. (1988). *Philosophy of Science*. Vol. 2. "From Explanation to Justification". New Brunswick: Transaction Publishers.
4. Chalmers, A. F. (1979). *What is this Thing Called Science? An Assessment of the Nature and Status of Science and its Methods*. Queensland: University of Queensland Press.
5. Nagel, E. (1968). *The Structure of Science: Problems in the Logic of Scientific Explanation*. New York: Routledge.
6. Newton-Smith, W. H. (2000). *A Companion to the Philosophy of Science*. Oxford: Blackwell Publishers.
7. Von Plato, J. (2014). *Elements of logical reasoning*. Cambridge University Press.