

## The Framework Education Program for Doctoral School at GUT

### Schedule of soft-skills development program:

Education Area	Course load	Course's title	2019 1 sem.	2020 2 sem.	2020 3 sem.	2021 4 sem.	2021 5 sem.	2022 6 sem.	2022 7 sem.	2023 8 sem.
I	15h x gr 20 per.	1. Basic didactic methods	-	15h	-	-	-	-	-	-
	15h	2. Technics of distant teaching	-	-	15h	-	-	-	-	-
II	5h x gr dycycl	1. Scientific databases and information skills	5h	-	-	-	-	-	-	-
	30h	2. Academic writing	-	30h	-	-	-	-	-	-
	5h x gr dycycl	3. Writing scientific paper	-	-	5h	-	-	-	-	-
	5h	4. Intellectual property protection	5h	-	-	-	-	-	-	-
	5h	5. Commercialization of scientific outcomes	-	-	5h	-	-	-	-	-
	5h	6. Writing grant application	-	-	-	5h	-	-	-	-
	10h x gr 15 per.	7. Smart metering - social risk perception and risk governance	-	-	10h	-	10h	-	10h	-
	10h x gr 15 per.	8. Decentralized energy systems. Social aspects of energy production and use	-	-	-	10h	-	10h	-	10h
III	5h x gr 20 per.	9. Workshop in research ethics	-	-	5h	-	5h	-	-	-
	5h x gr 30 per.	10. The art of rhetoric in scientific communication	-	-	-	5h	-	5h	-	-

#### Requirements:

- I-II year of studies (1-4 sem.) = 30h area I & 25h area II
- min. 15h area II (excluding no 2. Academic writing) & area III

### **“Basic didactic methods“**, 15h

The aim is to enhance your teacher's role of supporting students' learning by creativity and innovation. The course involves facets of psychological foundations of learning theories, goals of learning/teaching processes, teaching methods, issues of students' motivation, issues of assessment/evaluation.

### **"Technics of distant teaching"**, 15h included into eNauczanie e-learning platform, Distant Learning Centre at GUT

The course covers tips of how effectively create activities on Moodle including: necessary elements of an e-learning course, important settings, enrolling users, activities and resources available on Moodle, dos and don'ts of an e-learning course.

### **“Scientific databases and information skills”**, 5h, Magdalena Szuflińska-Żurawska, GUT Library

The training allows to acquire advanced information skills needed in doctoral studies, such as finding academic journals literature, using and evaluating information for academic studies, exploring the tools that enable scholars to keep track of information and academic research published through different channels, and publishing scientific outcomes.

### **“Academic Writing”**, 30h, The GUT Language Centre

Developing foreign language competence in academic writing by exercising:

1. Different text types – analysis and practice.
  - Argumentative essay;
  - Scientific report;
  - Abstract;
  - Summary;
  - Formal correspondence.
2. Style and register.
  - Identifying and implementing features of formal writing.
3. Referring to the work of others.
  - Paraphrasing;
  - Using quotations;

### **„Writing scientific paper”**, 5h, academic authors from different disciplines

The aim of the 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.

### **“Intellectual property protection”**, 5h, Justyna Pawłowska, PhD, Patent Attorney at GUT

The purpose of the workshops is to introduce participants to the main category of IP rights: patents and trademarks. There will be presented examples of the patented inventions, the role and practice from the patents, and the registered trademarks and refused registrations on legal grounds.

### **„Commercialization of scientific outcomes”**, 5h

Participants can get acquainted with commercialization scenarios at GUT (licensing, spin-off companies, commissioned research) and with case studies in the field of technology transfer at GUT. There will be an opportunity to analyze their own research through commercialization perspective, e.g. by using the Quick Look method as a way to quickly verify the market potential of research work.

### **“Writing grant application”, 5h**

The aim of the course is to provide the necessary information related to the search for sources of funding for scientific research and development work, with particular emphasis on competitions addressed to young researchers. Procedures for writing grant applications will be presented.

### **“Smart metering - social risk perception and risk governance”, 10h**

The goal of the course is to broaden the understanding of technology-related risks and to present the concepts of social risk perception and risk governance in the context of smart metering technology. In current phase of technological development – known as the fourth industrial revolution – rapid and profound changes are setting up new and particularly destabilizing risks. In more and more complex technological systems that constitute modern life, the risks become difficult to identify and even more difficult to measure and manage. Many of the technologies, such as artificial intelligence (AI) or genetically modified organisms (GMO) are considered from this point of view. A demonstrative example from the energy sector is smart metering (SM) technology.

### **“Decentralized energy systems. Social aspects of energy production and use”, 10h**

The main aim of the course is to introduce students to the socio-political aspects of the decentralization of energy systems. The motivation behind these changes is not only due to technological developments or economic issues. The main driving force are wider social and political trends. Many energy supply projects that are being developed and implemented today assume an active role for consumers in energy production, who become ‘prosumers’, at the same time producing and consuming energy. The shift towards being involved in energy production and deciding for oneself whether it is based on renewable or traditional energy sources is due to the growing public awareness of human-induced climate change.

### **“Workshops in research ethics”, 5h**

The course aims at acquiring and improving skills of analyzing a selected research problem in the frames of responsibility to conducting scientific research. After introducing the general principles of ethics in modern science, participant has the task of preparing the analytical work of a selected issue from own research in his/her discipline. The effect of the work is a description of the ethical dilemma that he/she faces in the research process, e.g. social aspects of artificial intelligence (AI), using specific chemical compounds against the environment, available research methods in the face of applicable law or economic conditions, social consequences of implementing a defined innovation, etc.

### **“The art of rhetoric in scientific communication”, 5h**

Workshops on the ability to discuss and exchange opinions in a given disciplinary topic by using so-called the Oxford Debate method. Participants are in favor of one of the sides of the debate on a given topic, its approval or disapproval. During discussions, however, they swap roles, i.e. in practice they are supposed to refute arguments supported by them previously, and thus, to defend a thesis that they did not support previously. The exchange of reference points aims to broaden the perspective of understanding a given research problem, and also aims to improve the skills of PhD students in a dispute, such as formulating statements, listening skills, exchanging knowledge and views in a constructive and factual manner, arguing and repelling counterarguments in team communication.