

**FACULTY OF MANAGEMENT****SUBJECT CARD****Name of subject in Polish** Etyka nowych technologii**Name of subject in English** Ethics of new technologies**Main field of study (if applicable):** Business engineering**Specialization (if applicable):** Business intelligence**Profile:** academic**Level and form of studies:** 2nd level, full-time**Kind of subject:** optional**Subject code** W08IZZ-SM8038**Group of courses** YES

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	<b>15</b>				<b>15</b>
Number of hours of total student workload (CNPS)	<b>50</b>				
Form of crediting	<b>crediting with grade</b>				
For group of courses mark (X) final course	<b>X</b>				
Number of ECTS points	<b>1</b>				
including number of ECTS points for practical classes (P)					
including number of ECTS points corresponding to classes that require direct participation of lecturers and other academics (BU)	<b>1,36</b>				

**PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES**

No prerequisites required.

**SUBJECT OBJECTIVES**

C1 Student is aware of the importance of ethical rules related to technology development and competent to identify ethical dilemmas related to his own and someone else's work.

C2 Student is aware of non-technical aspects of engineering and of social responsibility of an engineer.

**SUBJECT EDUCATIONAL EFFECTS****Relating to knowledge:**

PEU\_W01: Knows and understands the ethical norms and standards that determine the context of the economy and the organization, including the context of technology assessment and technology governance

**Relating to skills:**

PEU\_U01: Is able to analyze texts from the field of technology ethics, including technology assessment and technology management, and formulate independent conclusions based on them

**Relating to social competences:**

PEU\_K01: Is prepared to behave in a professional and ethical manner; perceives and formulates ethical dilemmas related to his own and someone else's work; seeks appropriate solutions and the possibility of correcting irregularities in their attitudes and behaviour in the workplace

<b>PROGRAMME CONTENT</b>		
<b>Lecture</b>		<b>Number of hours</b>
Lec 1	Introduction: morality, ethics, law. General ethics and applied ethics.	1
Lec 2	Ethical theories and types of justification of moral judgements.	2
Lec 3	Ethical dilemma: structure and types. Ethical dilemmas related to engineering and technology.	2
Lec 4	Expert and participatory technology assessment. Technology governance.	2
Lec 5	Risks and benefits of technology use. User experience: roboethics and other examples.	2
Lec 6	Ethical approaches tailored to new technologies. Ethical guidelines.	2
Lec 7	Ethical rules for professional engineering. Selected codes of ethics.	2
Lec 8	Obligations towards society: responsible research and innovation (RRI). Summary of the course.	2
	Total hours	15
<b>Seminar</b>		<b>Number of hours</b>
Semin 1	Introduction to the course. Distribution of course crediting tasks and explanation of the methods and approaches to be used in the analyses and micro-surveys.	1
Semin 2	Exercises in justification of moral judgements. Disagreement in knowledge and in attitudes.	2
Semin 3	Ethical dilemmas examples analysis. Identification of ethical dilemmas related to engineering activity and use of technology; group-work.	2
Semin 4	The process of formulation recommendations in technology assessment.	2
Semin 5	Risks and benefits of technology use: cases and examples. Exercises in user experience based on various scenarios.	2
Semin 6	Ethical rules and guidelines: analysis and exercises in possible implementation.	2
Semin 7	Developing a code of ethics: workshop.	2
Semin 8	Presentation of the course crediting case analyses and micro-surveys from the students. Summary of the course.	2
	Total hours	15

<b>TEACHING TOOLS USED</b>
N1. Interactive lecture with multimedial presentation.
N2. Student groupwork.

- N3. Student individual work.
- N4. Case analysis.
- N5. Brainstorming.
- N6. Scenario methods.
- N7. Thematic discussion.
- N8. Workshop based of peer-learning approach.
- N9. Peer-review and peer-feedback

#### **EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT**

<b>Evaluation</b> (F – forming during semester), P – concluding (at semester end)	<b>Learning outcomes code</b>	<b>Way of evaluating learning outcomes achievement</b>
F1	PEU_W01, PEU_K01 PEU_U01	Written work (case analysis or report from the micro-survey)
F2	PEU_W01, PEU_K01 PEU_U01	Participation in discussions, individual tasks, group activities, cooperation tasks;
F3	PEU_U01, PEU_K01	Presentation of case analysis and micro-survey results
$P(\text{lecture}) = 2/3 * F1 + 1/3 * F2$ $P(\text{seminar}) = 1/2 * F2 + 1/2 * F3$ $P = 2/3 * P(\text{lecture}) + 1/3 * P(\text{seminar})$		

#### **PRIMARY AND SECONDARY LITERATURE**

##### **PRIMARY LITERATURE:**

- [1] Budinger T.F., Budinger M. D., *Ethics of Emerging Technologies: Scientific Facts and Moral Challenges*, Hoboken, New Jersey 2006 (selected fragments).
- [2] Furey H., Hill S., Bhatia S.K., *Beyond the Code. A Philosophical Guide to Engineering Ethics*, Routledge 2021 (selected fragments).
- [3] Grunwald A., *Technology Assessment in Practice and Theory*, Routledge 2019 (selected fragments).

##### **SECONDARY LITERATURE:**

##### **SELECTED FRAGMENTS:**

- [1] Doorn Neelke and others (eds.), *Early engagement and New Technologies: Opening Up the Laboratory*, Springer 2013.
- [2] van den Hoven J., Doorn N., and others (eds.), *Responsible Innovations. Innovative Solutions for Global Issues*, Springer 2014.
- [3] Kamm F.M., *The Trolley Problem Mysteries*, Oxford University Press 2016.
- [4] Schermer M., *The Mind and the Machine. On the Conceptual and Moral Implications of Brain-Machine Interaction*, "Nanoethics" (2009) 3: 217-230.
- [5] Swierstra T., Rip A., *Nano-Ethics as NEST-ethics: Patterns of Moral Argumentation About New and Emerging Science and Technologies*, "Nanoethics" (2007) 1: 3-20.
- [6] Valero D., *Biomedical Ethics for Engineers*, Elsevier 2007.

##### **SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)**

Monika Małek-Orłowska [monika.malek@pwr.edu.pl](mailto:monika.malek@pwr.edu.pl);