



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Ethics and legal Issues in Smart Mobility, transport engineering and spatial development [S2TIIZM1E>EiZP]

Course

Field of study

Information Technology for Smart and Sustainable Mobility

Year/Semester

1/2

Area of study (specialization)

–

Profile of study

general academic

Level of study

second-cycle

Course offered in

English

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

32

Laboratory classes

0

Other

0

Tutorials

16

Projects/seminars

0

Number of credit points

4,00

Coordinators

dr inż. Paweł Zmuda-Trzebiatowski
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Lecturers

Prerequisites

Knowledge: Basic knowledge of sustainability concepts. Basic knowledge of transport systems Skills: Critical thinking and communication skills

Course objective

The aim of the course is to provide students with interdisciplinary knowledge and critical thinking skills necessary to develop and evaluate ICT-based solutions in the field of smart mobility. The course fosters an understanding of the ethical, legal, and societal implications of digital technologies in transport, with a focus on sustainability, equity, and inclusion. Students will be able to recognize and navigate moral conflicts, assess the impact of ICT on mobility systems, and differentiate between legal compliance and ethical responsibility in transport innovation.

Course-related learning outcomes

Knowledge:

The student has well-structured and theoretically grounded general knowledge related to key issues in the field of transport engineering, in particular, the student is familiar with issues related to the ethics of

cyber-physical systems and legal regulations concerning mobility and social equity
The student has knowledge of ethical codes related to scientific research conducted in the field of transport systems

The student demonstrates knowledge of the economic, legal, and other conditions affecting the operations of companies in the transport sector

The student understands and is familiar with the dilemmas related to the use of digital technologies in transport and the impact of transport policy on users' decisions.

Skills:

The student is able to obtain information from literature, databases, and other sources, integrate it, interpret and critically evaluate it, draw conclusions, and formulate well-justified opinions in the field of ethical issues related to mobility, transport exclusion, and social equality

The student is able to assess the usefulness and applicability of new achievements (methods and tools) as well as new IT products supporting mobility

The student is able to collaborate within a team, taking on various roles

Social competences:

The student understands the importance of dissemination activities related to the latest achievements in transport engineering and transport systems, and is ready to initiate actions for the benefit of the community and in the public interest

The student is aware of the need to develop their professional achievements, uphold the professional ethos, and adhere to the principles of professional ethics

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Group project and Written exam

Grading the results of exercises

Programme content

Introduction to different modes of transport and their key characteristics. Trends in transport and IT integration, including the use of GIS (Geographic Information Systems). Foundations of computing and computer ethics. Tools for ethical reasoning and decision-making. Relationship between ethics and law, including whistleblowing. Legal framework for mobility, including personal rights and responsibilities. Equity in transport policy and the ethical implications of transport's impact on the environment

Course topics

1. Transport-related subjects:

- Definitions and basic characteristics of various modes of transport
- Transport & IT development trends
- GIS in transport
- Collection of transport data
- Basics of traffic engineering

2. Ethics and law-related subjects:

- Characteristics of Computing and Computer Ethics
- Ethics of Algorithms
- Ethics of Cyber-Physical Systems
- Thinking tools for decision-making
- Professionalism and Codes of Ethics
- Ethics and Law: relation between ethics and law; whistle blowing
- Legal aspects: legal framework in mobility; personal rights and obligations
- Transport policy and equity
- Extent of transport's influence on environment - ethical aspect

Teaching methods

The course is conducted remotely (online) in a synchronous format. Classes may also be held in person. Interactive lectures with multimedia presentations.

Case studies and practical examples. Individual work and group work.

Bibliography

Basic:

Johnson, D. G., & Nissenbaum, H. (1995) Computers, ethics & social values. Prentice-Hall, Inc.

Additional:

Tolley R., Turton B. J. (2013) Transport systems, policy and planning. Ebook.

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	48	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	52	2,00