



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Teleinformation Systems [N2Trans1>ST]

### Course

Field of study

Transport

Year/Semester

2/3

Area of study (specialization)

Railway Transport

Profile of study

general academic

Level of study

second-cycle

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

### Number of hours

Lecture

18

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

dr inż. Żaneta Staszak

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### Lecturers

### Prerequisites

KNOWLEDGE: the student has basic knowledge of mathematics, computer science, electronics and information theory. SKILLS: the student is able to obtain information from the literature on the current state of knowledge related to ICT and the latest development trends in this field. SOCIAL COMPETENCES: the student is able to evaluate social and environmental problems resulting from the use of modern information technologies. The student is able to work in a group and shows independence in solving problems, acquiring and improving the acquired knowledge and skills.

### Course objective

Familiarization with the concepts related to the scope of construction and operation of ICT systems, expanding the student's knowledge of the construction of these systems, familiarizing the student with selected techniques and hardware solutions, whose task is to ensure safe communication in ICT networks, familiarizing the student with selected network protocols that guarantee the security of data transmission in ICT systems.

### Course-related learning outcomes

Knowledge:

Student has advanced and in-depth knowledge of transport engineering, theoretical foundations, tools and means used to solve simple engineering problems

Student has ordered and theoretically founded general knowledge related to key issues in the field of transport engineering

#### Skills:

Student is able to obtain information from literature, databases and other sources (in Polish and English), integrate them, interpret and critically evaluate them, draw conclusions and formulate and exhaustively justify opinions

Student is able to use information and communication techniques used in the implementation of projects in the field of transport

#### Social competences:

Student understands that in the field of transport engineering, knowledge and skills very quickly become obsolete

Student understands the importance of using the latest knowledge in the field of transport engineering in solving research and practical problems

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:

Grades for discussion and activity during lectures. Written execution of lectures. Written credit for the lecture topics.

### Programme content

Teleinformatic (telecommunication) networks - types, structure. Digital data transmission, transmission structures, coding, multiplexing, modulation, encryption, compression. Types of teleinformation systems, their goals and tasks. Technologies for creating systems. Basic topologies of computer networks paying attention to the advantages and disadvantages of wired and wireless networks.

### Course topics

Basic concepts related to the construction of teleinformatic systems. Presentation of the use of teleinformatic systems in road, rail and air transport. Methods of securing these systems.

### Teaching methods

1. Lectures with multimedia presentation

### Bibliography

#### Basic

1. Norris M.: Teleinformatyka, WKŁ, 2002
2. Haykin S.: Systemy telekomunikacyjne, WKŁ, 2004
3. Bradford R.: Podstawy sieci komputerowych. Warszawa: WKŁ, 2009
4. Kula S., Systemy Teletransmisyjne, WKŁ, Warszawa 2006
5. Kabaciński W., Żal M.: Sieci telekomunikacyjne. Warszawa: WKŁ, 2008

#### Additional

1. Marciniak M.: Łączność światłowodowa, WKŁ, 1998
2. Pr. zb.: Vademecum teleinformatyka t. I, II i III. Warszawa: IDG, 2002
3. Simmonds A.: Wprowadzenie do transmisji danych. Warszawa: WKŁ, 1999
4. Urbanek A. (red.): Leksykon. Teleinformatyka. Warszawa: IDG, 2001

### Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	18	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	32	1,00