



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Information Technology [N1EiT1>TI]

### Course

Field of study

Electronics and Telecommunications

Year/Semester

2/3

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

part-time

Requirements

compulsory

### Number of hours

Lecture

0

Laboratory classes

20

Other (e.g. online)

0

Tutorials

0

Projects/seminars

0

### Number of credit points

2,00

### Coordinators

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### Lecturers

### Prerequisites

A student should have basic knowledge and skills in using of a PC and basic applications, such as a text editor, a spreadsheet. The student should be able to manage application windows, files, folders, as well as installing and uninstalling software and computer peripherals. He should also have ability to obtain information from the indicated sources and be ready to cooperate as part of the team. A student should know the basic laws of electrical engineering (Ohm, Kirchhoff).

### Course objective

Acquiring knowledge and skills in the use of computer techniques and programs (on the example of LTspice, MS Office and Libre Office). Learning editing and simulating of electronic circuits, both analog and digital. Learning how to process text data, perform calculations and charts, and create multimedia presentations. Searching for needed information on the Internet.

### Course-related learning outcomes

Knowledge:

1. Ma uporządkowaną wiedzę w zakresie architektury i budowy sieci zintegrowanych
2. Ma uporządkowaną wiedzę w zakresie standardów obowiązujących w sieciach zintegrowanych

### 3. Zna kierunki rozwoju sieci teleinformatycznych

#### Skills:

1. Potrafi zidentyfikować problemy w działaniu sieci w dostępie użytkownika
2. Potrafi sprawdzić poprawność działania urządzeń sieciowych w dostępie użytkownika
3. Potrafi ocenić przydatność określonych rozwiązań ze względu na wymagania użytkownika

#### Social competences:

1. Posiada świadomość znaczenia sieci telekomunikacyjnych w funkcjonowaniu społeczeństwa
2. Zna ograniczenia własnej wiedzy i umiejętności, rozumie konieczność dalszego doszkalania się

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The skills acquired during the classes are rating by student's work during the exercises, his activity and by exercise reports prepared by students where attention is paid to both the content and the form (editing text or presentation).

### Programme content

Working with office applications:

- spreadsheet
- text editor,
- multimedia presentations.

Applications for analysis and simulation of electronic circuits.

Editing and simulation of analog electronic circuits.

Editing and simulation of digital circuits.

Obtaining catalog and simulation data for electronic components.

### Course topics

Spreadsheets based on the example of the Calc application from the LibreOffice package:

- creating and calculating data series,
- creating charts,
- determining the regression equation,
- conditional functions,
- creating and analyzing pivot tables.

Text editor based on the example of the Writer application from the LibreOffice suite:

- basics of text editing and formatting,
- embedding objects in the text: drawings, tables,
- formula editor,
- creating tables of contents and objects embedded in the text,
- text processing, correspondence merge.

Creating a multimedia presentation using the example of the Impress application from the LibreOffice package.

Basics of using popular applications for simulating electronic circuits, both classic and web, on the examples of LTspice, NI Multisim, <https://www.multisim.com>

Basics of drawing electronic circuit diagrams, adding new symbols to libraries.

Editing and simulation of analog electronic circuits:

- constant current analysis, determining the characteristics of currents and voltages as a function of given values, including: voltage, resistance, temperature,
- time analysis, transient analysis,
- frequency analysis,
- creating and adding new elements and layouts to libraries.

Editing and simulation of digital circuits:

- principles of digital circuit simulation in LTspice,
- time analyzes of digital systems,
- creating and adding new layouts to libraries.

Finding technical data on the Internet: catalog cards, symbols and simulation models of electronic components, and their implementation and use in a simulation program.

### Teaching methods

Laboratory exercises: multimedia presentation illustrated by examples given on the whiteboard and solving out the tasks given by the teacher according to the received manual - practical exercises.

## Bibliography

### Basic

Adam Jaronicki, MS Office 2016 PL, Wydawnictwo Helion, Gliwice 2016.

Przemysław Kreft, LibreOffice. Krok po kroku, Biblioteczka Komputer Świat, Nr 1/2017 (90)

Manual: LTspiceIV Getting Started Guide, available in resources [www.analog.com](http://www.analog.com)

### Additional

Piotr Wróblewski, Microsoft Office 2007 PL w biurze i nie tylko, Wydawnictwo Helion, Gliwice 2007.

Andrzej Dobrowolski, Pod maską SPICE'a. Metody i algorytmy analizy układów elektronicznych, Wydawnictwo BTC, Warszawa 2004.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	65	2,00
Classes requiring direct contact with the teacher	25	1,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	40	1,00