



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Engineering thesis [S1ETI2>PDinż]

### Course

Field of study

Education in Technology and Informatics

Year/Semester

4/7

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

Polish

Form of study

full-time

Requirements

elective

### Number of hours

Lecture

0

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

60

### Number of credit points

10,00

### Coordinators

dr hab. Mirosław Szybowicz prof. PP  
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### Lecturers

### Prerequisites

Knowledge of experimental physics and basic specialist knowledge in the field of information systems and the operation of computer networks in the scope of the curriculum content implemented in semesters 1-6 at the 1st degree of education in the field of Education in technology and informatics. The ability to solve problems in the field of physics and computer science based on the acquired knowledge, the ability to obtain information from the indicated sources. Understanding the need to expand your competences.

### Course objective

1. Teaching students to use the acquired knowledge and skills to solve a complex structural or scientific problem. 2. Developing the ability to use literature sources and the method of quoting sources. 3. Developing the ability to create experimental and IT documentation. 4. Developing the ability to write a scientific text.

### Course-related learning outcomes

### Knowledge:

student has structured knowledge of basic physical phenomena in the field of selected issues of experimental physics; has basic knowledge of metrology, knows and understands methods of measuring physical quantities and analyzing results; knows the principles of engineering graphics and technical drawing

student has knowledge of procedural and object-oriented programming, artificial intelligence, databases and computer graphics; has knowledge of information systems including the architecture of computer and operating systems, theory, technology and operation of computer networks, knows the properties and principles of operation of various network devices and computer support for technical education

student has knowledge of current issues in materials engineering, functional materials and nanotechnology

student has knowledge in the field of technical mechanics, strength of materials and general principles of engineering structures and technology of manufacturing and processing of engineering materials; has elementary knowledge in the field of electrical engineering, electronics and the basics of control and automation

student knows the state of knowledge regarding the issues included in the diploma thesis

### Skills:

is able to obtain information from literature, databases and other sources, is able to perform calculations for engineering structures, is able to select materials with appropriate physico-chemical and structural properties for engineering applications, is able to use object-oriented and database programming languages in the field of applications and configuration of information technology

systems, is able to use software enabling graphical presentation and analysis of experimental results, is able to plan and perform standard measurements, analyze, interpret and document research results, is able to design and conduct numerical simulations of physical phenomena and technical processes using standard software in the field of issues related to the diploma thesis

is able to prepare and present an oral presentation and a written study using the acquired knowledge concerning issues related to the diploma thesis

### Social competences:

student is able to work independently on a given task, demonstrates responsibility in this work, understands the need for further education, acts in accordance with the principles of professional ethics, is responsible for the reliability of the results of his/her work

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Form of evaluation Evaluation criteria

evaluation of the thesis 50.1% -70.0% (3)

evaluation of the oral presentation of work 70.1% -90.0% (4)

assessment of responses to presentation questions from 90.1% (5)

thesis grade 50.1% -70.0% (3)

evaluation of the oral presentation of work 70.1% -90.0% (4)

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thesis grade 50.1% -70.0% (3)

evaluation of the oral presentation of the work 70.1% -90.0% (4)

assessment of responses to presentation questions from 90.1% (5)

## Programme content

Preparation and editing of an engineering diploma thesis.

## Course topics

1. Principles of preparing the thesis.

2. Tips for preparing a presentation in Power Point programs.

3. The current state of knowledge in the field of selected issues of experimental physics and computer science.

4. Additional content depending on the subject of the implemented engineering thesis.

## Teaching methods

Laboratory exercises: practical exercises, performing experiments, discussion, team work.

## Bibliography

Basic:

Selected individually by the student in accordance with the topic of the work.

Additional:

Selected individually by the student in accordance with the topic of the work.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	250	10,00
Classes requiring direct contact with the teacher	60	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	190	7,50