



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Enviromental Physics

### Course

Field of study

Year/Semester

Physic

3/5

Area of study (specialization)

Profile of study

Technical Physic

general academic

Level of study

Course offered in

First-cycle studies

polish

Form of study

Requirements

part-time

compulsory

### Number of hours

Lecture

Laboratory classes

Other (e.g. online)

20

0

0

Tutorials

Projects/seminars

10

0

### Number of credit points

3

### Lecturers

Responsible for the course/lecturer:

Responsible for the course/lecturer:

dr Aleksander Skibiński

aleksander.skibinski@put.poznan.pl

### Prerequisites

none

### Course objective

Acquainting with physical processes in atmosphere: thermodynamic processes, radiation, basic of cycles of some gasses and aerosols in the atmosphere, microphysics of cloud particles and cloud physics, optical and electrical phenomena in the atmosphere. To obtain understanding and competent knowledge to analyze and study these processes.

### Course-related learning outcomes

Knowledge

On completion of the course, the student should be able to:

1. apply thermodynamics on dry and humid air
2. determine if the atmosphere is stable or unstable from vertical temperature profile



- 3. describe how precipitation is created
- 4. explain how motion (wind) is created in the atmosphere

Skills

The application of basic principles of physics on atmospheric processes

Social competences

none

**Methods for verifying learning outcomes and assessment criteria**

Learning outcomes presented above are verified as follows:

The assessment consist of two parts, a theoretical exam and practical exercises exam. The theoretical exam can be completed (0 - 100 points). The practical exam can be complited with 2 term exams: theoretical (0 - 40points) and presentation (0- 60points).

**Programme content**

Application of the basic equations of fluid dynamics on atmospheric flow. The relation between the distribution of wind, pressure and temperature. Analysis of atmospheric motions. Basic kinematics. Continuity equation. The influence of the earth's surface on the atmosphere. The properties of the dry and humid air. Theromdynamics, cloud formation processes.

**Teaching methods**

lectures and practical assignments

**Bibliography**

Basic

Andrews, D. G.: An introduction to atmospheric physics, Cambridge University Press, 2000

Additional

Egbert Boeker, Rienk van Grondelle: Environmental Physics, PWN 2002

**Breakdown of average student's workload**

	Hours	ECTS
Total workload	70	3,0
Classes requiring direct contact with the teacher	35	1,0
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) <sup>1</sup>	25	1,0

<sup>1</sup> delete or add other activities as appropriate