



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Discrete Mathematics [S1MNT1>B-MD]

### Course

Field of study

Mathematics of Modern Technologies

Year/Semester

2/4

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

15

Laboratory classes

15

Other (e.g. online)

0

Tutorials

30

Projects/seminars

0

### Number of credit points

4,00

### Coordinators

dr Piotr Rejmenciak

piotr.rejmenciak@put.poznan.pl

### Lecturers

### Prerequisites

Basic knowledge of mathematics.

### Course objective

Presentation of basic methods and problems in the field of finite mathematical structures.

### Course-related learning outcomes

Knowledge:

- knows modular arithmetic and basic problems related to the theory of graphs and recursion [K\_W01(P6S\_WG), K\_W02(P6S\_WG), K\_W07(P6S\_WG)].

Skills:

- can perform modulo integer operations; is able to find any expression of a simple recursive sequence [K\_U01(P6S\_UW), K\_U02(P6S\_UW)].

Social competences:

- is responsible and is aware of the need for reliability at work [K\_K01(P6S\_KK), K\_K02(P6S\_KK)].

## Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lectures: 45-minute test consisting of variously scored questions - pass mark: 50% of points;

Tutorials: 90-minute test and a problem to be solved at home - pass mark: 50% of points;

Laboratory classes: projects (Matlab) and final test - pass threshold: 50% of points.

## Programme content

Update:

Lectures& Tutorials& Laboratory classes:

- recursion: finding solutions by characteristic equations and generating functions
- congruences: modular arithmetic

## Course topics

Lectures& Tutorials& Laboratory classes:

- recursion: finding solutions by characteristic equations and generating functions
- congruences: modular arithmetic

## Teaching methods

Lectures: presentation and blackboard examples;

Tutorials: black board exercises;

Laboratory classes: laboratories - Matlab calculations, presentations.

## Bibliography

Basic:

- K.A. Ross, C.R.B. Wright, Matematyka dyskretna, PWN, Warszawa 2012;
- N. Koblitz, Wykład z teorii liczb i kryptografii, WNT 1995.

Additional:

- T.H. Cormen, C.E. Leiserson, R.L. Rivest, Wprowadzenie do algorytmów, PWN, Warszawa 2012.

## Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
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)	40	1,50