

# SYLLABUS & REGULATIONS

Course name: **Machine design 1**  
Course name in other language: **Podstawy Konstrukcji Maszyn 1**  
Short name: **MD1**  
Course code: **ML.ANW124**  
Course language: **English**

ECTS: 3  
Hours: 2h/week, 30h/semester

## Contents:

Introduction to design: design process, problem formulation and calculation, experimental tests, the engineering model, factors of safety and design codes, patents and standards, safety regulations, limiting conditions, optimization and evaluation criteria. Static failure theories Fatigue failure theories: fatigue failure models, fatigue loads, notches and stress concentrations, designing for high-cycle fatigue, designing for fully reversed and fluctuating stresses. Modelling and calculations in selected areas of machine design: welded, riveted and cemented joints, fasteners, interference fits.

## Bibliography:

1. Machine Design – An Integrated Approach, Second or Third edition, by Robert L.Norton, Prentice Hall 2000-2006.
2. Machine Elements in Mechanics and Design – Fourth Edition, by Robert L. Mott, Prentice Hall 2006.
3. Design of Machine Elements – seventh edition, by M.F.Spotts and T.E.Shoup, Prentice Hall 1998.

## Grading criteria:

The final grade for the course is determined on the basis of the results of the three tests.

The basic points of regulations associated with grading are as follows:

1. Only the student who is registered for this course can complete it.
2. The presence at the lectures and tutorials of the course is obligatory and can be checked.
3. There will be three tests (graded) with one possibility of correction.

In extraordinary cases the Head of the Fundamentals of Machine Design Division takes the decision about completing the course.

## Meetings:

Whole course will take place on-line with the Microsoft Teams platform. There will be dedicated MD1 course group. All the materials will be available there. The meeting will be on Thursdays at 12:15 pm to 3:00 pm. Office hours (on-line, at MS Teams) are on Thursdays 10:15-12:00. Please make an appointment earlier via e-mail.

Course Teacher & Coordinator:  
**Rafał Perz, PhD**

# Full Machine Design 1 Regulations

1. The classes are conducted in remote mode using the MS Teams platform.
2. Attendance at the class can be controlled.
3. Verification of the achievement of learning and conditions for passing the subject:
  - a. Verification of learning outcomes takes place in remote mode in Moodle system on the platform (<https://moodle.usos.pw.edu.pl/login/index.php>). Responses sent outside the platform will not be evaluated, except in case of obvious technical problems. In this case, however, the photos submitted must contain unchanged metadata that allows the identification of the device they were taken with and the time of execution.
  - b. There are three tests during the semester.
  - c. Each of the test is rated on a scale from 2.0 (insufficient) to 5.0 (very good).
  - d. In order to pass the course, all three tests should be scored at least 3.0 and the arithmetic mean of the grades not less than 3.0.
  - e. The first test includes only theoretical questions, or simple accounting tasks and consists of 4 to 8 questions.
  - f. The second and third tests consist of a theoretical part (2-4 theoretical questions or simple tasks) and a task part (one or 2 complex accounting tasks). The exact conditions of organizing the tests, including the weighting of marks from each part and the duration, are determined by the teacher and communicated during the class, no later than one week before the date of the colloquium.
  - g. There will be one chance for improving the grade. At the end of semester there will be improvement test. To take the improvement test student needs to pass (3.0) at least one regular test during semester.
  - h. In the case of passing only one test student will write the test containing whole material of the semester and the final grade will be based only on that test.
  - i. In the case of passing two tests and failing only one, student will correct only the test that was failed.
  - j. In the case of a student's doubts as to the grade or suspicion of a dependent job, the teacher arranges an interview with the student about the work in the Teams system. Other, randomly selected students may also be asked for an interview. The interview should enable verification of the student's identity, e.g. through the possibility of connecting a camera and verification of the image with the photo on the student's ID card. These conversations are not recorded.
  - k. While writing test, a session in the Teams program will be open, during which a question can be asked to the teacher. It will also be possible to individually verify the student's identity in the way described in point j.
  - l. In case of technical problems such cases will be dealt with individually.
4. The grades from individual tasks are placed (with short comments) in the Moodle system, and the test grades in the USOS, no later than two weeks after the date of this test, and from the third test no later than 2 days before the date of the improvement test.
5. While writing the tests it is forbidden for students to contact each other during the course of work, to use the help of other people, prohibited notes, textbooks, etc. If it is necessary to use the templates, they will be given by the teacher. In the case of credits or remote exams, the fact of solving the tasks on their own is confirmed during the course of solving the tasks by signing an appropriate statement according to the specimen given in the Rector's Order, or electronically filling in such statement.
6. During the test in the stationary mode it is allowed to use only the following materials:
  - a. Clean paper.
  - b. Writing and drawing materials (pen or pencil, pencil, ruler, compass, etc.).
  - c. Calculator, if the solution of accounting tasks is envisaged. It is not allowed to use calculators in a cell phone or other device with an operating system.
  - d. A card with templates prepared by the teacher.
7. In the case of cheating, using prohibited materials or devices, the student is asked to leave the test and receives 2.0 grade from the course without the possibility of improving it in a given cycle.
8. Appeals against these Regulations and the decision of the lecturer can be submitted to the Head of the Department of Basic Construction.
9. In matters not regulated by these Regulations, the General Regulations for Studies at the Warsaw University of Technology apply.