

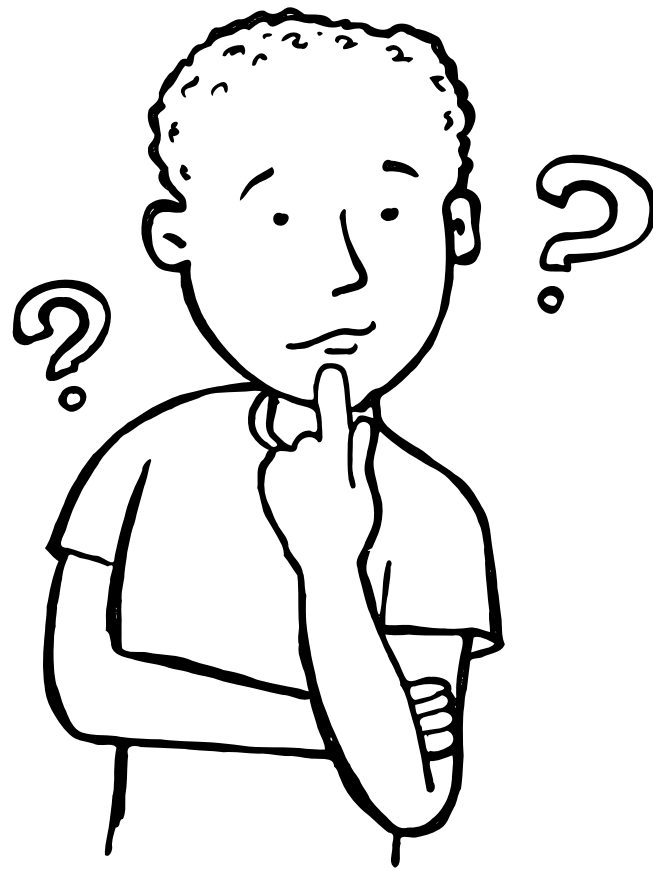
A photograph of a library lecture hall. The room features rows of orange plastic chairs with black frames, arranged in a central aisle. The walls are lined with dark wood bookshelves filled with books. The ceiling has a grid of recessed lighting. In the background, several students are seated, some looking towards the front of the room. A semi-transparent white box is overlaid in the center of the image, containing text.

Problem based learning (PBL)

Instructions for students



What is problem based learning (PBL)?



- teaching that takes real-world examples ('problems')
- a more efficient way of teaching because the student leads the main work, decides how the problem will be solved
- greater autonomy of students = invaluable quality of teaching



What will be expected of you?

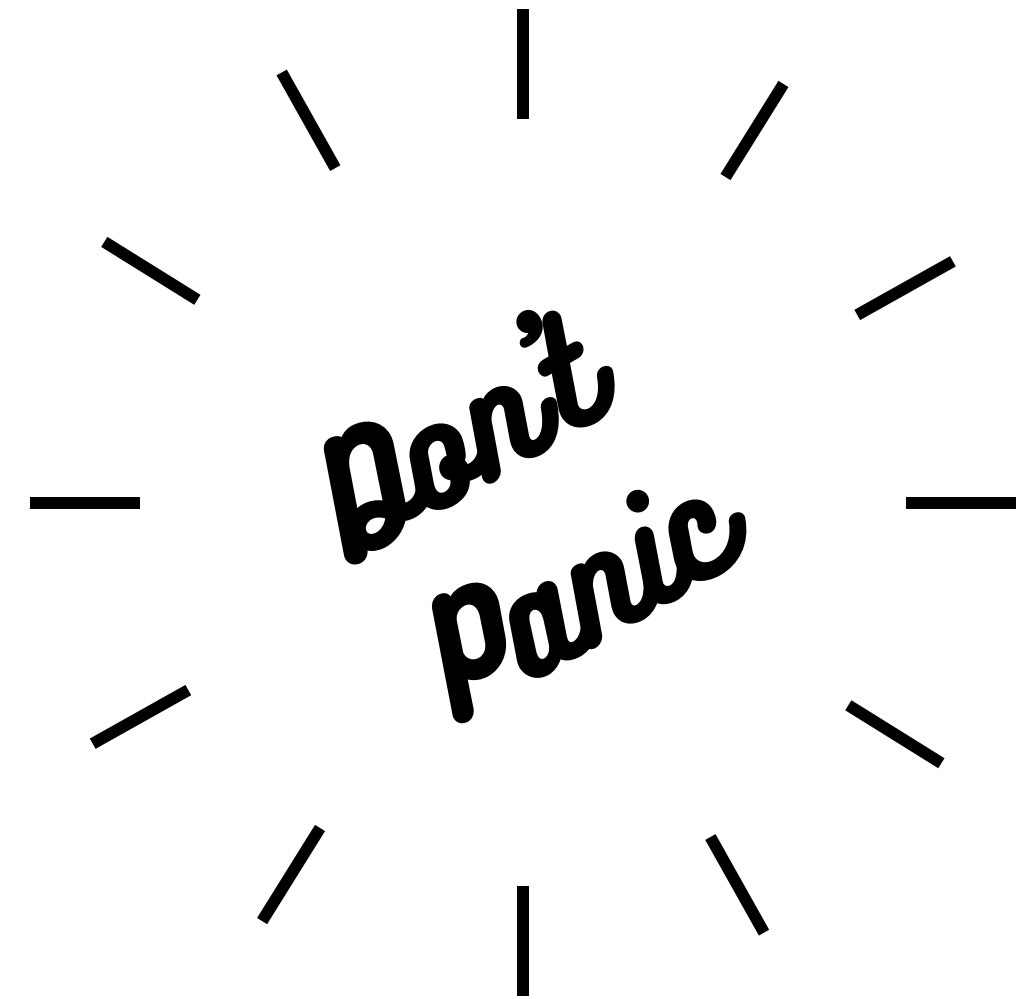
- openness to new challenges
- collaboration and contribution within group work
- conscientious self-preparation
- communicativeness and argumentation – always support your opinion with examples (evidence)
- critical thinking
- willingness to work and perseverance

There are no wrong or stupid solutions



Expected outcomes - after this lecture the student should be able to:

- define wind potential (in terms of formation and strength)
- list the basic components of wind turbines and their subgroups
- be able to list at least five wind turbine plants in Croatia
- know the basics of maintaining wind turbine components
- develop a simplified maintenance plan for the wind turbine component
- be able to list the most common reasons for malfunction of the components of wind turbines



Definition of the problem



- In today's world, there is a growing emphasis on renewable energy resources and devices that can use these forms of energy to meet the needs of normal and functional daily life.
- The topic of today's classes is the potential of wind, precisely wind turbines, which are devices that convert the kinetic energy of air flow into electrical energy, ready for everyday use.
- Wind turbines need to be maintained in order to perform their function continuously and smoothly but Croatia is a country of winds of extremely high speeds and variable directions (e.g. bora), which puts an additional load on these devices.

PROBLEM: You have been placed in the position of shift manager of wind turbine maintainers at a remote location (Šibenik, Zadar, Pag). Your superiors want a complete check of the functionality of the wind turbine to prevent a breakdown due to sudden gusts of wind. How will you determine the course of implementation of the functionality check in terms of financial, material and human resources? What steps will you take to ensure that the functionality check is secure? What problems do you expect?

Course flow chart



1

LECTURE

- true or false questionnaire
- short discussion
- additional information
- potential ideas

2

INDEPENDENT WORK

- collecting information from sources and solving the table
- problem solving work
- writing down your own ideas

3

GROUP WORK

- sharing the information gathered and potential solutions
- group discussion of solutions of all members
- selecting one solution that will represent the group solution

4

CLASS DISCUSSION

- a group representative represents the solution of his group
- the whole class comments on the group's solution (argues their opinion)



Questions?





Helena Ivanac-Perutka

helena.ivanac@gmail.com

**Thank you for your attention and I wish you
successful work!**

