

EDU ROBOTICS CUP

organized by  EDUTUS
UNIVERSITY



2025

Engineer Challenge

KIDS GAME RULES

**Edu Robotics Cup
2024-2025
Engineer Challenge - Teens Rulebook**

1. Game Mat

Below you can see the game mat:



2. Game Objects

Red and Blue LEGO blocks (blue and red facility modules) (1):

Amount: 4 of red facility modules, 4 of blue facility modules

Facility module building: 4X4 LEGO brick base, 5 bricks height

Placement: 2 red and 2 blue facility modules are in port, and another 2 red and 2 blue facility modules are next to the port.

Plastic bottle cap (any color allowed, 2):

Amount: 6 pieces

Size: diameter 23 - 28 mm

Placement: Find the exact positioning marked below on the mat with purple '2's.

Clear plastic cup (3):

Amount: 1 cup

Size: standard 500 ml (minimum height 100 mm)

Placement: next to the Space center in the area marked with a yellow '3', needs to align to the bottom left corner.

Origami space shuttle (4):

Amount: 1 piece

Size: original paper size 150 mm x 150mm, preparation instructions [here](#)

Placement: The nose cone of the space shuttle needs to touch the Edutus logo on the university building (marked with a white on black '4') and the tail needs to point towards the bottom-left corner.

Table tennis ball (5):

Amount: 2 pieces

Size: standard 40 mm diameter

Placement: each ball goes on a plastic bottle cap. It is prohibited to attach balls and plastic bottle caps to each other using any method (glue, etc...).

LEGO minifigure (6):

Amount: 4 minifigures

Size: standard minifigure without tool

Placement: Minifigures should be in the squares marked with a light-blue '6' on the field, their position and orientation does not matter.

Ruler (7):

Amount: 1

Size: 30 cm

Placement: to show us in the video that the game mat is of the correct size you have to place a ruler on or next to the cows 🤗

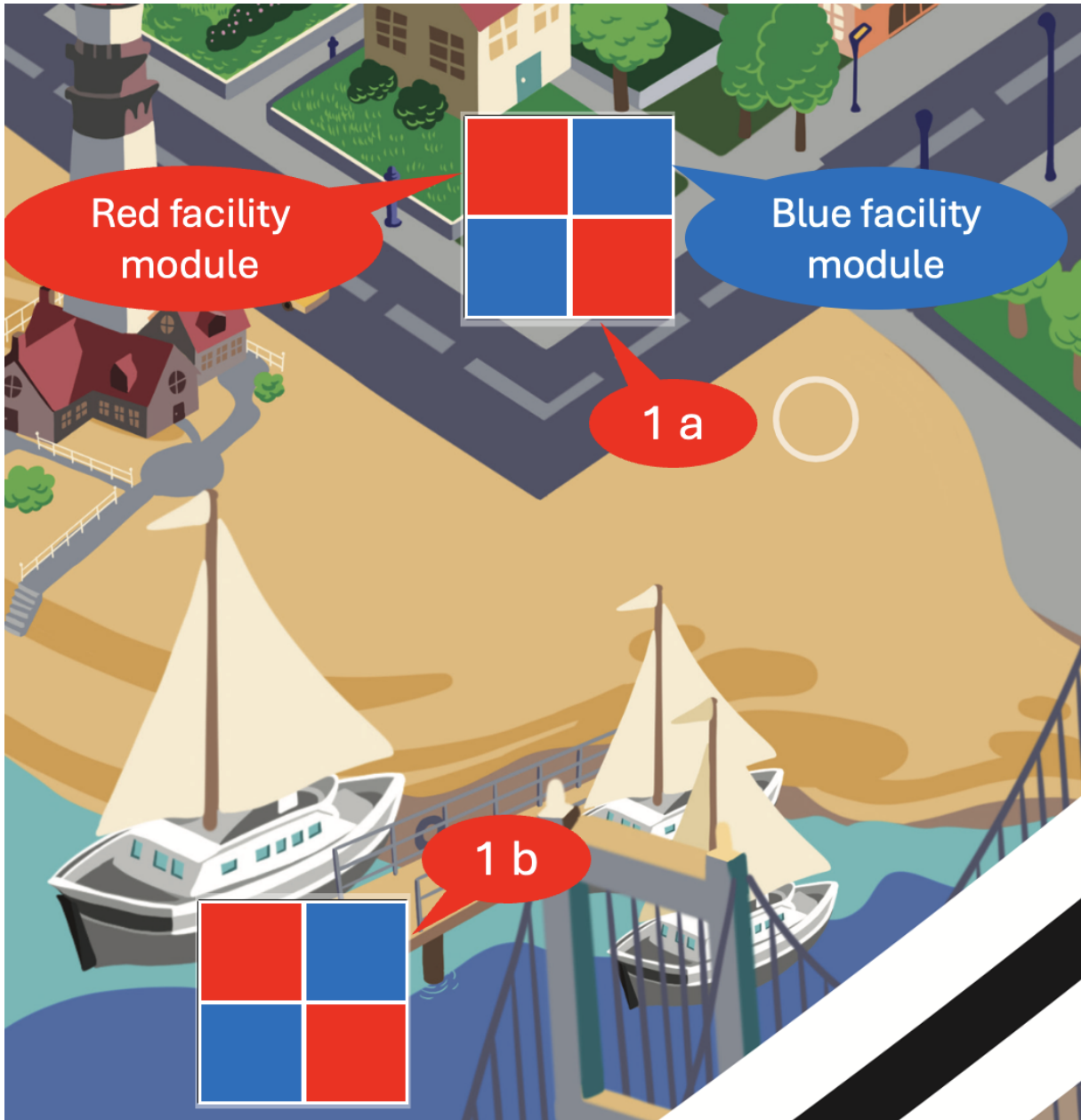
3. Game Objects on the Game Field

Starting position: The robot needs to touch the mountain with 2 hikers on the bottom part of the mat bordered by a blue line.

See picture below where to place the different game objects:



Starting position of 1a and 1b objects:



Here is the starting position of the blue and red facility modules of the marked areas with 1a and 1b.

4. Game Tasks

Install command center and press office:

As part of the preparations, we need to install new facilities to meet all the requirements for the space shuttle launch. Transport the four blue modules from the 1a and 1b areas to the designated area on the Island and place the four red modules in the target area near the Farm. The modules are mixed up, you need to identify them and transport them to the correct location.



Collect locally manufactured spare parts:

Gather the spare parts (four stand-alone plastic bottle caps) and transport them to the space agency warehouse (in the clear plastic cup) located near the space center.



Carry engineers to the new command center:

The newly established command center on the Island requires engineers for proper operation. Move the four engineers (LEGO mini figures) from their current location to the Island. The Island means the area that is surrounded by the red line in the below picture of the field.



Transfer the Space shuttle for launch:

The space shuttle is presently located at the University campus. Pick it up and transport it to its launch position (Space Center). The space shuttle and the launchpad is considered to be the correct launch position.



Communication system:

The engineers have installed the extended telecommunication network to ensure effective communication during the space mission. Handle your robot carefully and make sure it does not disturb these telecommunication devices (Table tennis balls on a plastic bottle cap).



5. Scoring

Tasks	Score
Install command center and press office	max 80
The red or blue LEGO block (Building modules) is touching the designated target area (Red – Farm, Blue - Island). Objects must stand upright.	10
The red or blue LEGO block (Building modules) is touching the target area (Red – Farm, Blue - Island).	5
Collect locally manufactured spare parts	max 70
The spare parts are located in the clear plastic cup. The cup is standing upright and touching the initial rectangle.	15
Additional: The clear plastic cup is located completely in the initial rectangle at the end of the robot run.	10
Carry engineers to the new command center	max 50
Engineer is completely located on the Island area (Command center)	10
Engineer is touching the Island area (Command center)	5
Additional: At the end of the robot run at least one Blue Lego block (Building module) touching the target area of the command center	10
Transfer the Space shuttle for launch	max 10
The Space shuttle is in launch position, meaning it is touching the shuttle and/or the launch site graphics on the top right part of the field	10
Communication system	max 10
The communication system devices are not moved or damaged	5
Technical points	
Recorded and uploaded video includes all requested parts: <ul style="list-style-type: none"> • robot, • game field and game objects, • robot run, • end position of robot and game objects. 	10
The team uploaded only one video file and one program documentation, which apply to the requested format and naming format.	5
Total score	235

6.1. Definitions for scoring

Completely inside: every part of the game object that touches the game field only touches the target area not including the surrounding line.

Touching: the game object touches the target area not including the surrounding line. Important that in this case the game object is not completely inside the area, because that is a different case.