



EUROPEAN BEST ENGINEERING COMPETITION

EBEC MOSCOW 2016

Team Design

Hello, dear participants! Congratulations with reaching the final stage of EBEC Moscow 2016! Are you ready to apply your knowledge in practice? Are you ready to turn on your imagination? Do you want to become a superhero? Be an engineer!

Power Plant

Energy comes in various forms but electrical energy is the most convenient form of energy. Since it can be transported with ease, generated in a number of different ways, and can be converted into mechanical work or heat energy.

Energy is generated in a power plant using different given source. Actually, the term “generated” in the previous sentence is a misnomer since energy cannot be created or destroyed but merely changed from one form to the other. A power plant can be said to be a place where electrical energy is obtained by converting some other form of energy. The type of energy converted depends on what type of power source is being considered.

Main task: You need to create your own Power Plant. You can make use of existing ideas or create something new.

Extra task: But for what will be your electricity? How about create home with lights or maybe whole street with lanterns or perhaps something special. Use your imagination.

Good luck!

Evaluating criteria

1) Type of power plant. Some power plants have more complicated construction, but more captivating to create, so that's why we have compiled a list in descending order of the most compelling power plants:

- Combined Cycle Power Plant

A combined-cycle power plant uses both a gas and a steam turbine together to produce up to 50 percent more electricity from the same fuel than a traditional simple-cycle plant

- Gas Power Plant

Gas turbine engines derive their power from burning fuel in a combustion chamber and using the fast flowing combustion gases to drive a turbine in much the same way as the high pressure steam drives a steam turbine.

- Steam Power Plant

A steam power plant is a power plant in which the electric generator is steam driven. Water is heated, turns into steam and spins a steam turbine which drives an electrical generator. After it passes through the turbine, the steam is condensed in a condenser.

- Hydroelectric Power Plant

Hydropower plants capture the energy of falling water to generate electricity. A turbine converts the kinetic energy of falling water into mechanical energy. Then a generator converts the mechanical energy from the turbine into electrical energy.

- Wind Power Plant

Wind power is the use of air flow through wind turbines to mechanically power generators for electricity.

Or you can create something new using for example manual drive, electromagnetic induction or static electricity to get some extra points .

2) Capacity - the main parameter for power plants.

3) Creativity. How interesting and unusual the idea developed by team.

4) Engineering skills & knowledge. How scientific is your solution.

5) Completeness of presentation. How the team could explain the main idea.

6) Presentation skills. How your solution is designed and how well speech is delivered.

Rules of the competition

General:

- It is forbidden to use mobile phones and internet
- It is forbidden to exchange any materials or tools with other teams
- The presentation lasts for no more than 3 minutes.
- The team has 3 attempts to start the setting (during the presentation).

Shop:

You can pay in the shop by extracting points. In the beginning you have 500 points.

- Shop opens at 11 a.m. and is opened during the whole event. You can buy materials in the shop while the shop is opened.
- Shop closes an hour before the end of the day scheduled.
- Any member of the team can approach the shop (in order to get familiar with the materials), but only CAPTAIN of the team can buy materials.
- You can buy required materials using points that you have originally
- If you have negative number of points, these points will be extracted in a special way from your resulting points, which you get after presentation.

Tools:

- only CAPTAIN can get the tools
- when CAPTAIN gets a tool, he should tell the person on the issuing point
- only CAPTAIN returns the tool, he should attentively watch the tool to be struck off the team's list!
- team is responsible in case of losing or damaging tools
- it's forbidden to hand the tools over to other teams! The tools are to be returned immediately after use!

