

Robowars Design Challenge

General Rules:

- ▶ Each team can have a maximum of 4 participants.
- ▶ There is no restriction on batch for students. A team can have members from different batches.
- ▶ The organizers reserve the right to change the rules as they deem fit.
- ▶ Judges decision will be final.

Event Structure:

An abstract submission by all participating teams will be required by **20th October 2017 11:59 pm**.
The abstract should cover the following aspects:

- ▶ Team Name/ Team Leader's name/ Team Leader's contact information/ Team Members' Details
- ▶ Introduction (Describe the attacking/defensive mechanism you are going to design) ~ 50 words
- ▶ Construction (Describe the anatomy of your robot by giving details about the mechanical and electrical components) ~ atleast 50 words, If used
- ▶ Working Principle (Describe the working of your robot also describe about the control systems. Also include your INNOVATION (if used) i.e., how is your robot different from a conventional one) ~ atleast 50 words , If used.

Based on the abstract, successful teams will be required to submit their final CAD model by **2nd November 2017 11:59 pm..**

Problem Statement:

This is not war...it's human extinction.' - Optimus Prime, Transformers: Age of Extinction

The ultimate test of engineering excellence and teamwork is here! Robotics Club brings to you its flagship project, Robowars. Witness the brightest engineers in India build the mightiest monsters which shall unleash Armageddon on the battle turf!

Each team has to come up with a CAD model of a robot capable of a one on one combat. With pneumatic pincers, mighty armours, nifty axes and more innovative weapons, these merciless mercenaries shall be ready to manufacture and fight for the glory of their makers, upholders of the dignity of the club.

Dimensions and Weight:

- ▶ The bot should fit in a box of inner dimensions 750mm x 750mm x 1000 mm (l x b x h) at any given point during the match. (Controllers are not included)
- ▶ The bot should not exceed 120 pounds and should be more than 35 pounds of weight including the weight of pneumatic source/tank (Controllers are not included).
- ▶ All pneumatic/Hydraulic source tanks and batteries should be on the bot itself.
- ▶ The weight of adapters and the remote controller will not be included in this constraint.

Mobility :-

All robots must have easily visible and controlled mobility in order to compete. Methods of mobility include Rolling on wheels, tracks or the whole robot. While jumping/hopping and flying are not allowed.

NOTE the Following exceptions and limitations

- ▶ Liquid projectiles.
- ▶ Any kind of inflammable liquid.
- ▶ Flame-based weapons.
- ▶ Any kind of explosive or intentionally ignited solid or potentially ignitable solid.
- ▶ High power magnets or electromagnets.
- ▶ Radio jamming, tazers, tesla coils, or any other high-voltage device.
- ▶ Tethered or un-tethered projectiles.
- ▶ Weapons or defenses that stop combat completely of both (or more) robots. This includes nets, tapes, strings, and other entanglement device.

Pneumatics:

- ▶ Robot can use pneumatic devices actuated by pressurized non-inflammable gases. Maximum allowed outlet nozzle pressure is 12 bar.
- ▶ Participants must be able to indicate the used pressure with integrated or temporarily fitted pressure gauge. Also, there should be provision to check the cylinder pressure on the bot.
- ▶ Entire pneumatic setup should be on-board, no external input (from outside the arena) can be given to the robot for functioning of its pneumatic system.

Hydraulics:

- ▶ Robot can use non-inflammable liquid to actuate hydraulic devices e.g. cylinders.
- ▶ All hydraulic setup should be on-board and it must be securely mounted. Special care must be taken while mounting pump, accumulator and armour to ensure that if ruptured direct fluid streams will not escape the robot also the entire system should be leak proof .
- ▶ Maximum pressure is 12 bars.