**TECHNICAL RULES**

**CODESWAP:**

**INTRODUCTION:**

Code Swap is a co-ordination based programming challenge where the players in a team will interchange their codes while coding.

SWAPPING allows the players to code for not only one but two programs in different languages which makes it all the more interesting and challenging.

However the players must note that in the game, time plays an important factor.

**RULES:**

1. Code Swap is based on java, C and C++ languages.
2. It is team event comprising of two members each. The team cannot be changed once registered.
3. The team has to reach the appropriate location on time, any delay will not be considered.
4. Each person can register only once.
5. There will be one round and a tie breaker round in case there is a tie.
6. After receiving the pup item statement the members of the team are not allowed to talk or communicate in sign language.
7. If found doing so, will be considered as unfair means and will result in disqualification.
8. Use of comments, declaring and defining unnecessary variables and blank lines won’t be allowed. If found doing so will result in disqualification.
9. Each member of the team is given 10 minutes to work on the problem statement given to them and exactly after 10 minutes the team members have to swap their code and complete the program given to the other member of the team.
10. The team completing first both the programs with proper output will be declared winner.
11. If none of the teams are able to get the required output, Then team with appropriate programs and less no. of errors will we declared winners.
12. Participants are not allowed to bring any devices like pen drive, DVD, CD etc.
13. Participants cannot carry cell phones to the event location.
14. All stationary such as pen paper pencil will be provided.
15. The above mentioned rules are subjected to change depending on the circumstances.

The decision of the Technical Secretary & event head is final and binding.

**NUMBER OF MEMBERS IN A TEAM: 2**

**ROBOMAZE:**

**INTRODUCTION:**

To design a manually controlled bot that can traverse given path of maze in minimum time to win the competition.

**RULES:**

* 1. Arena should not be damaged in any circumstances. Doing so may lead to disqualification.
  2. If participants calls for any kind of argument it will be sorted properly but only after completion of all rounds, in any circumstances rounds will not be interrupted.
  3. Any part of the bot should not detach / be left in the arena. Pulling wires to handle the bot would result in disqualification.
  4. Disputes, if any will be resolved by the Organizers and his decision will be final. Event managers can revise the rule at any point of time if it is necessary.
  5. Team must adhere to the spirit of healthy competition.
  6. Focus is on developing robots and innovation. Teams may be inquired about the developmental process of their robot and general awareness of robotics.
  7. Participants will be given time slots according to their arrival at arena venue.
  8. Each team will have to report sharply at their allotted time slots otherwise will have to wait until all other participants complete their turn.
  9. At the time of reporting, all team members should be present with working bot. Any kind of repairing is not allowed inside arena. If bot stops working properly, team members will have to leave the arena. Co-ordinators will decide if second chance is to be given or not.
  10. Team members have to swap control after 40 seconds.

**Technical rules and regulations:**

* 1. Participants need to properly insulate their motors.
  2. AC supply not allowed.
  3. The bot will initially start from the entry line and in its way it will cross certain checkpoints as it reaches the finish line.
  4. If the bot gets stuck at any point and needs manual intervention then it will make the bot to restart from the last checkpoint crossed. Only coordinators can touch the bot in that case, team members cannot touch the bot during its run.
  5. The arena will be modified in the 2nd and 3rd levels where some surprise elements will be added.
  6. The time will not be stopped under any circumstances until and unless it is the fault from our part.

**Bot Specification:**

1. Maximum bot size 250mmX250mmX250mm (l\*b\*h).
2. Maximum weight: 5 Kg.
3. Maximum voltage at any point: 18 volts (+2 volts). No current limit.
4. The manual bot can be controlled wired or wirelessly.
5. Teams can use on-board power supply or external power supply.
6. The use of standard chassis, readymade Lego kits is allowed.
7. The length of connecting wire should be up to 3.5 m.

**ROADRASH**

DESCRIPTION:

Roadrash is an event where different teams will compete with each other to complete the precise path in minimum time. The path consists of various obstacles to check the strength of bot and skills of controller.

RULES:

Arena should not be damaged in any circumstances. Doing so may lead to disqualification.

Team which completes the precise path in minimum time will win

* A team can have maximum of 3 member.
* Students from different colleges can also form a team.
* Every manual touch will cost an additional 10 seconds.
* Time penalty will be charged to skip an obstacle.
* If participants calls for any kind of argument it will be sorted properly but only after completion of all rounds, in any circumstances rounds will not be interrupted.
* Any part of the bot should not detach / be left in the arena. Pulling wires to handle the bot would result in disqualification.
* Disputes if any will be resolved by the Organizers and his/her decision will be final. Event managers can revise the rule at any point of time if it is necessary.
* Team must adhere to the spirit of healthy competition.
* Focus is on developing robots and innovation. Teams may be inquired about the developmental process of their robot and general awareness of robotics.
* Participants will be given time slots according to their arrival at arena venue.
* Each team will have to report sharply at their allotted time slots otherwise will have to wait until all other participants complete their turn.
* At the time of reporting, all team members should be present with working bot. Any kind of repairing is not allowed inside arena. If bot stops working properly, team members will have to leave the arena. Coordinators will decide if second chance is to be given or not.
* Participants need to properly insulate their motors
* . The bot will initially start from the entry line and in its way it will cross certain checkpoints as it reaches the finish line.
* If the bot gets stuck at any point and needs manual intervention then it will make the bot to restart from the last checkpoint crossed. Only coordinators can touch the bot in that case, team members cannot touch the bot during its run.
* Participants can claim for a technical time in case of an emergency like removal of grip or breaking of wires,etc depending on event heads.
* After every 40 seconds,the team members have to swap the control.

BOT SPECIFICATION:

1. Level-1 or Level-2 bot
2. Dimensions: 25 x 25 cms x 25 cms
3. Weight limit10kg
4. 18 volts.
5. Wire should not cause hindrance in the arena.
6. AC supply not allowed.

**TECHNICAL PAPER PRESENTATION (TPP):**

**INTRODUCTION:**

Technical paper presentation (TPP) gives you platform to present your views and perspectives regarding working of gadgets, or out of the box you can postulate a new invention by submitting and drafting your thesis on white papers. Our renowned judges will analyze, examine and question your work. On the basis your fact-finding and experimentation you will be rewarded with cash prizes.

**Rules and Regulation:**

* Maximum of 3 member per team
* 1 Soft copy to be mailed to the event heads before the event
* Presentation to be mailed to the mail id one day before the event and if any change is there,bring the file in pen drive.
* 3 Hard copy to be brought at the time of event (depending upon the number of judges)
* Abstract to be maximum 300 words
* The length of paper must not exceed five A4 pages.
* Formals are compulsory.
* The technical paper template in MS-Word should be downloaded from:

<http://www.ieee.org/conferences_events/conferences/publishing/templates.html>

* Total presentation time is 12 mins (10 mins presentation + 2 mins Q/A)

**BLIND C**

**Description:**

It is a unique programming competition where we have to write the program in c language for the given problem with the monitor kept off. This activity mainly tests your concentration, accuracy, programming skills. Problem statement will be given on the spot to the participants.   
  
The developers don't need a screen or anything when they start their scripting. They just create the code in mind and run their fingers on the keyboard. Participate to challenge others to show who is the real programmer.

**Rules :**

* While program execution System monitor will be switched off C editor remain open
* Only one candidate is allowed per entry
* Decision is taken in order to programming with Timeline.
* The participant is allowed to carry a blank notepad for rough code.

**ROBOSUMO**

**Description:**

It is a Sumo wrestling competition where robots try to push each other out of the ring avoiding various obstacles .The robot which remains inside the ring wins the competition.

**Gameplay:**

1. Each battle will consist of three rounds.
2. Each round will be of 2 minutes.
3. Bot will be considered eliminated if it either falls off the arena or is immobile or cannot perform linear movement within 30 seconds
4. If at the end of 3 rounds if the bots are still active and both inside the arena the result will be decided on the basis of a tie breaker
5. Tiebreaker will consist of a ring of reduced diameter and it will be a single round of 1 min.

**Bot specification :**

1. The dimensions of the robot used for Robosumo is 40x40 (length x breadth) (10% tolerance allowed). All dimensions are in cm.
2. The maximum permissible weight for the robot is 15 kg with 5% tolerance.
3. The robot should not be split intentionally into components or parts during the match.
4. There should not be negative clearance.
5. Battery voltage permitted: 24V.
6. AC supply not allowed.

**Rules :**

1. The robots should not have any attacking weapons on the robot; the robot should only PUSH the opponent robot outside the arena.
2. Use of wedges are allowed to push away the opponent robot.
3. No lifting or flipper mechanism can be used.
4. Batteries such as LiPo, NiCd, sealed Lead Acid, Li-ion can be used. Change of battery won’t be allowed during the match.
5. All efforts must be made to protect battery terminals from a direct short and causing a battery fire, failure to do so will cause direct disqualification.
6. Use of damaged, non-leak proof batteries may lead to disqualification.
7. Special care should be taken to protect the on-board batteries. If judges found that the battery is not properly protected, then team will be disqualified immediately.

**ROBO SOCCER**

1.Each team will have to defend the goal on its side as well as score the goal on the opposite side.

2.Each team can have a maximum of 4 team members.

3. Robots must be of proper dimensions (level 1) otherwise it will result in penalty.

4. Robots must be able to remain completely inside the start zone before the start of the game.

5. The game will start by whistle.

In case a team starts its robot before the whistle, the game will be restarted and a team making this most for more than 3 times will be penalized.

6 .The ball can be either dragged or pushed by the team by adding fixed mechanism(20\*20cm) max in front side .

7.Each goal scored by a team by rolling the ball on the ground will fetch the team 1 point.

The game will last for 4 minutes. (2HT+2HT)

8.Maximum 2 members per team will be allowed to remain close to field for operating the robots.

9.After 1 minute team member should switch control of robot.

10.In case of jam up of robots for more than 10 seconds the robots will have to kick-off again at the order of the refree.

11.If match goes tie then match will go into penalties. Each match will be a knockout match.

12.In case of any discrepancy the final decision rests in the hands of co-ordinators.

Any act of misbehaviour or misconduct will lead to immediate disqualification or heavy penalty on the team.

13.The robots are not allowed to use grippers , robotic arm or actuations which are intended to harm the opponents robot.

14.The competition is aimed at making the game a friendly football match rather than a robo war.

Bot specification :

* The dimension used for robosoccer is 30X30 (Length X breadth)(+ 5 % tolerance is allowed).All dimensions are in cm.
* Maximum permissible weight is 10 Kg (5 %tolerance is allowed).
* AC supply is not allowed.
* Battery voltage permitted is 18 V.

**RC CAR RACING**

**1. There will be a qualifying session.**

**2. The top teams from the qualifying rounds will make it to the second round.**

**3. After the qualifying round, there will be races between multiple cars at a time. So the participants must use a remote with frequency of band spectrum 2.4 GHz.**

**4. The track will have check points at regular intervals. If a machine tumbles, halts or goes off the arena at any point on the track, one of the team members is allowed to lift it up and place it at the nearest checkpoint behind that point. The time shall still be running in the meantime.**

**5. Team members are not permitted to touch either their machines or those of their opponents once the race begins (unless there is need to lift the machine as stated in fourth point). The penalty for doing so is disqualification**

**6. If the machine is not able to cross any particular obstacle then machine can be lifted and placed by passing through the obstacle but 30s (for each obstacle) will be added from the whole time as penalty.**

**7. In the qualification round, a maximum of two team members are allowed from a team in the racing arena while in the final round only one of the team member will be in the racing arena except the controller on the stand.**

**8. The machines are not allowed to leave any loose parts on any part of the arena. Any machine disintegrating during the race will be disqualified.**

**9. If any of the machines starts off before the flag is waved, the counter would be restarted and the machines will get a second chance. However, if any machine starts off before the waving of flag (or countdown) for a second time, it will be disqualified. No rematch will be held for the second time.**

**10. Teams are not allowed to purposefully damage the machine of the opponent's team. If found doing so on track (while racing), the concerned team will be disqualified.**

**CODE COMBAT**

**RULES:**

1.Participants need to compile the program using ONLY Turbo C++.  
2. Marks will be given on the basis of the program execution, indentation, and the time taken to compile the program in the given time slot.  
3. No participant would be allowed to use their own compiler software for his/her own needs.  
4. Participants caught cheating/copying any sort of code in ANY form will be disqualified from the event immediately. Also, any sort of digital gadgets(Mobile phones, tablets etc.) are not allowed inside the lab during the event.  
5. Time Limit for every round will be allotted ON THE SPOT.  
6. Any participant found messing with the lab computer’s hardware/software components till be fined according the event co-ordinator’s instructions.  
7. There will be three rounds in the entire event:  
ROUND 1:  
Participants will be given a specific code pertaining to an algorithm. They will have to debug the program and get the desired output.  
ROUND 2:  
Participants will be provided with pattern based questions. They will have to code their way out to get the desired pattern. Logic should be applied.  
ROUND 3:  
Participants would be given a question in the form of a riddle. The answer to the riddle will be the output of a code which is to be generated by them within a time slot.

8.Total marks will be calculated in all three rounds and the winner will be judged accordingly

## **ROBO-WAR**

## GENERAL INSTRUCTIONS:

**• Team can have a maximum of 6 members.**  
**• A team is allowed to play with only one robot.**  
**• No one should touch the robot during the game doing so would lead to elimination.**  
**• If the robot is wired the team members have to make sure that the wire should remain slack and lifted throughout the competition. It should not disturb the arena and participants, doing so would lead to disqualification.**

**PARTICIPANTS SHOULD BRING WIRED ROBOTS ON THEIR OWN RISK.  
• Unfair game would lead to disqualification.**  
**• The competition will be played on a knock-out basis.**  
**• Violation of any of the rules will result in immediate disqualification.**  
**• The maximum time limit for the clash of combatants inside the arena is 10 minutes.**  
**• A bot will be declared immobile (out) if it cannot exhibit linear motion of at least one inch within 30 seconds. A bot with one side of its drive train disabled will not be counted out if it can demonstrate some degree of controlled movement.**  
**• Teams that are not ready when called for battle will be considered to have declared a walkover, and will receive no points.**  
**• The bot cannot be split into two sub-units. Two distinct parts connected by a flexible cable will be considered separate units.**  
**• Damaging the arena will lead to immediate disqualification.**  
**• Lego kits, readymade kits, car bases and development boards are not permitted. Readymade gear boxes are permitted.**  
**• Decision of the Event Organizers will be treated as final and binding and cannot be contested.**

## Winning criteria:

**• A bot wins if its opponent is immobilized or thrown out of the arena. In case both the robots remain mobile at the end of the round, the winner will be decided under the rules as discussed in the scoring pattern.**

## Specifications for the robot:

**• The machine should fit in a box of dimension 750mm x 750mm x 1000 mm (l x b x h) at any given point during the match. The external device used to control the machine or any external tank is not included in the size constraint.**  
**• The machine should not exceed 45\* kgs and should be more than 20\* kgs of weight including the weight of pneumatic source/tank.**  
**• All pneumatic tanks/source and batteries should be on board. Weight of remote controller will not be counted.**  
**Mobility: All robots must have easily visible and controlled mobility in order to compete. Methods of mobility include:**  
**• Rolling (wheels/tracks/whole robot).**  
**• Jumping and hopping is allowed.**  
**• Flying (airfoil using, helium balloons, ornithopters, etc.) is NOT allowed.**  
**Rotational Weapons:**  
**• Spinning weapons must come to a full stop within 60 seconds of power disconnection using a self-contained braking system. Robots can have any kind of cutters, flippers, saws, lifting devices, spinners, hammers etc.**  
**The following may not be permitted:**  
**• Liquid projectiles.**  
**• Any kind of inflammable liquid.**  
**• Flame-based weapons.**  
**• Any kind of explosive or intentionally ignited solid or potentially ignitable solid. Nets, tape, glue, or any other entanglement devices are not permitted.**  
**• High power magnets or electromagnets.**  
**• Radio jamming, Tasers, tesla coils, or any other high-voltage device.**  
**• Tethered or un-tethered projectiles.**  
**• Spinning weapons which do not come in contact with the arena at no point of time are allowed. In no case should the arena be damaged.**

## Control Requirements:

**• Robot can be wired or wireless (wireless is preferable).**  
**• If you are using wireless remote the team must have at least two frequency wireless remote control circuit or two dual control circuits which may be interchanged before the start of the race to avoid frequency interference with other teams. The case of any interference in the wireless systems will not be considered for rematch or results.**  
**• Remote control systems from toys might be used. Remote control systems available in the market may also be used.**  
**• Nonstandard or self-made remote control systems must first be approved by the organizers.**  
**• Team should pair up the wireless remote with the machine before putting it into the arena.**  
**Battery and Power**  
**• The machine can be powered electrically only. Use of an IC engine in any form is not allowed. On board batteries must be sealed, immobilized-electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells).**  
**• The electric voltage between 2 points anywhere in the machine should not be more than 36V DC at any point of time.**  
**• All efforts must be made to protect battery terminals from a direct short and causing a battery fire, failure to do so will cause direct disqualification.**  
**• Use of damaged, non-leak proof batteries may lead to disqualification.**  
**• Special care should be taken to protect the on-board batteries. If judges found that the battery is not properly protected, then team will be disqualified immediately.**  
**• Change of battery will not be allowed during the match.**  
**• Only bots with on board batteries are allowed. It is suggested to have extra battery ready and charged up during competition so that on advancing to next level, you don’t have to wait or suffer due to uncharged battery. If teams don’t show up on allotted slot, they will be disqualified.**

**PROJECT EXHIBITION**

* Project Exhibition is independent of any theme.
* Maximum 4 members in a group.
* Working model is mandatory.
* Power Point Presentations must be prepared and presented.
* Each team has to bring your own laptops.
* Team members must be present at the time of arrival of judges.
* Charging slots will be provided.

**CAD MASTER**

Description :

Cad master is an competition where different individual will compete against each other to complete the given task on inventor software in 2 hours.

The candidate have to guess the riddle to identify the design to be made. Once identified the design , a 2D diagram will be provided to make the 3D model and drawing sheet.

Rules :

1. Time limit- 2 hours. Once the riddle is given the time will be started.
2. You will have to prepare 2 drawing sheets:-
3. Assembly sheet

-Front view, Top view, Sectional side view , Isometric view.

- Part list.

b. Part details sheet

-All parts (Sectional view and isometric).

- Dimensions

- Tolerance

3. Points will be given for assembly, proper dimension, tolerance, sheet presentation.

4. candidate can ask for 1st hint after 10 mins of commencement , but 5 points will be deducted . If candidate wants the answer for the riddle 15 points will be deducted but he/she can opt for it after 20 mins of commencement.

5.Decision of judge will be final.

Winner will be declared based on the candidate with maximum points