KRONOS-15

Technical Events Rule Book

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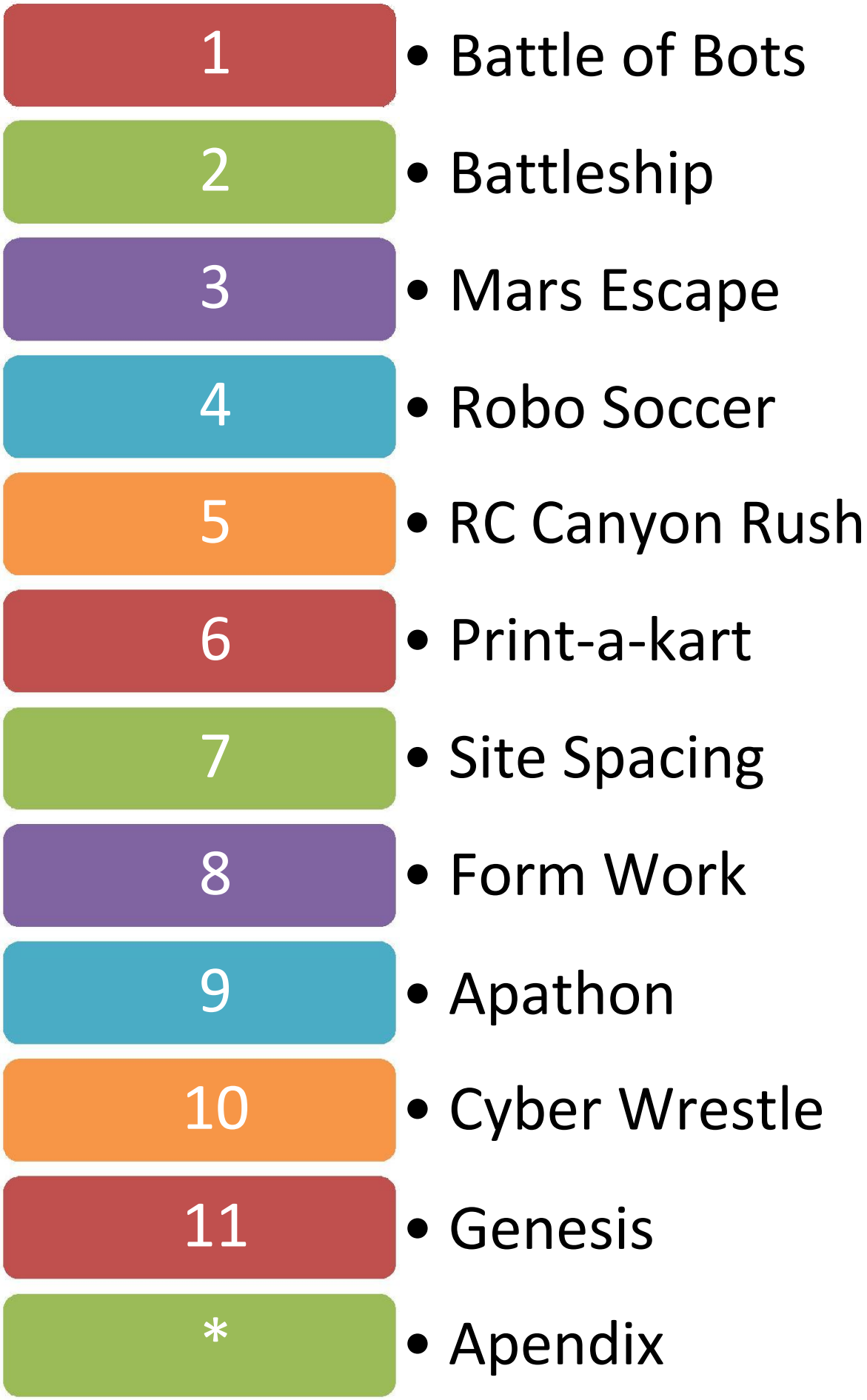
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BATTLE OF BOTS
(Extreme rules)

PROBLEM STATEMENT

The challenge is to create a robot (manually controlled / autonomous) which can defend you from opponents and more importantly can destroy them within a stipulated time.

GAME PROCEDURE

Each team can have maximum of **4** members.

During the match only one team-member will participate in competition (active member). He will be controlling the robot. Teams are allowed to switch the active members in different matches.

Only one team member will be given safety gear and others have to stay away from the arena. NOTE: This switch is not allowed in the middle of an on-going match.

Setup time: 60 seconds. In case a team does not report to the weight and measurement counter before their setup time starts, then the opponents will be declared the winners of that round.

Also, if a team fails to setup their robot within 60 seconds, then the opponents will be given a walkover.

A robot is declared victorious if its opponent becomes totally inactive. A robot will be declared inactive if it cannot display any movement for a time period of 30 seconds.

ROUND DESCRIPTION

Round 1:- Four bots will fight against each other in the arena. Their aim will be to overpower among opponents and throw them out of the arena, drop into the pit made in the arena. It will have fixed time duration.

Round 2:- This round will be the real war. Each team will be having time of 10 minutes to destroy their opponent. There will be two working weapon or something else like spikes, rotating disc etc in the arena itself.

GENERAL RULES

The bot will be inspected for safety before the event begins. It will be discarded from competition, if found unsafe, for the participants or spectators.

The organizers have the right to change any or all of the rules as they deem fit. Changes in rules, if any, will be highlighted on the website.

Violation of any of the rules will result in immediate disqualification.

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.

In all cases, the judges' decision will be final and binding.

ROBOT SPECIFICATIONS

Robot dimension & fabrication

The initial dimension of the robot should not exceed **60cm x 60cm x 60cm**. However there is no limitation on robot dimension once the match starts.

Any machine component should not be detached (intentionally) during any point of the war.

The weight of the machine should not exceed **25 kg** and should not be less than **7 kg** (excluding remote control and remote control wires).

In case of a wireless robot, weight will be counted as (0.8 x actual weight).

Readymade gear boxes, parts, chassis, control circuits and remote controls can be used.

Robot control

In case of wired bots, the minimum length of the wires should be **10 meters**. The wires should remain slack at any instant during the fight. All the wires coming out of the machine should be stacked as a single unit. Also, the wires should be projected **1000 mm** above the ground to avoid entanglement.

In case of wireless system, it should have a minimum four frequency remote control circuit or two dual control circuits or a transmitter-receiver paired module so that frequency interferences with the opposing team can be avoided (in case of any interference in the wireless systems, they will not be considered for rematch or in the results).

Remote controls that are readily available in the market may also be used.

Battery & power

The machine can be powered electrically only. Use of an IC engine in any form is not allowed. Batteries must be sealed, immobilized-electrolyte types (such as gel cells, lithium, NiCad, NiMH, or dry cells).

The electrical voltage at any point of time in the machine should not exceed **40 V DC/AC**.

230V (AC) power will be provided (wired bots).

In case of wireless robot, the batteries should be placed on the robot. In case of wired robots teams can use external batteries.

All efforts must be made to protect battery terminals from a direct short and causing a battery fire. Failure to do so will lead to disqualification.

Pneumatics and hydraulics

Participants can use pneumatic and hydraulic weapon systems but use of external pressure/ liquid cylinders are not allowed. Cylinders should be placed on the robots.

The outlet pressure of the source/tank should not exceed **8 bars**.

Robots can use pressurized, non-inflammable gases/liquid to initialize their pneumatic mechanisms.

The used pressure should be indicated by means of a temporarily fitted pressure gauge or there should be a provision to measure the cylinder pressure on the robot.

You must have a safe way of refilling the system and determining the on board pressure.

All pneumatic components on board a robot must be securely mounted. Particular attention must be paid to the pressure vessel mounting and armor to ensure that if ruptured it will not escape the robot. The terms 'pressure vessel, bottle, and source tank' are used interchangeably.

Weapon Systems

Robots can have any kind of cutters, flippers, saws, hammers, lifting devices etc. as weapons, with the following **exceptions**:

Liquid projectiles

Acid based Weapons

EMP generators

Any kind of flammable liquid

Flame-producing weapons

Explosives

Nets, glue or any other entanglement devices

High power magnets or electromagnets

Robot's weapons are classified as defensive or offensive by the event coordinators based on the description given by the team in the Team Description Paper (**TDP**).

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BATTLESHIP

PROBLEM STATEMENT:

The challenge is to make a floating platform with cannon mounted on it. The cannon should be long ranging and accurate in aiming and should not misbalance the boat (Control recoil force generated by the cannon).

GAME PROCEDURE

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

During the match only one team-member will participate in the competition (active member). He will be controlling the robot. Teams are allowed to switch the active members in different matches.

Setup time: 120 seconds. In case a team does not report to the weight and measurement counter before their setup time starts they may be disqualified.

NOTE: This switch is not allowed during an on-going match.

ROUND DESCRIPTION

ROUND 1

The team will be given three tries to fire at maximum.

The boat should not sink till the cannon ball hits the water.

The maximum distance travelled will be considered as a parameter of qualification.

ROUND 2

The ship has to fire the ball on the given target.

The boat should not sink till the cannon ball hits the water.

There will be different targets to shoot; different targets will have different points. The teams will be given three chances to fire.

GENERAL RULES:

Once the ship is in arena, team members can touch the ship only for reloading the cannon.

The ship should not sink till the cannon ball hits the water. Failing in this, the chance will be counted but the hit will have no value.

Limitation

a. Gun powder
b. Any type of chemicals
c. Fire
d. Radio Jamming (If RC is used)

ROBOT SPECIFICATIONS

Robot dimension & fabrication

The initial dimension of the ship should not exceed **30cm x 30cm x 25cm**. However there is no limitation on ship dimension once the round starts.

Any machine component should not be detached (intentionally) during any point of the round.

Readymade gear boxes, parts, chassis, control circuits and remote controls can be used.

Cannon ball specification

Only table tennis balls are allowed (provided by the organizers).

Battery & power

The electrical voltage at any point of time in the machine should not exceed **24 V DC/AC**.

230V (AC) power will be provided (wired bots).

In case of wireless ship batteries should be placed on the ship.

In case of wired ships teams can use external batteries.

All efforts must be made to protect battery terminals from a direct short and causing a battery fire. Failure to do so will lead to disqualification.

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***Firing of cannon can be done with a mechanical attachment to the ship, but it should not move the ship anyhow.**

MARS ESCAPE

PROBLEM STATEMENT

The objective of this event is to design an autonomous robot which can make its way while facing hurdles in the path. The robot to complete the course in the shortest period of time from the start to the finish will be the winner.

GAME PROCEDURE

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

During the match only one team-member will participate in competition (active member). He will be controlling the robot. Teams are allowed to switch the active members in different matches.

Setup time: 120 seconds. In case a team does not report to the weight and measurement counter before their setup time starts they may be disqualified.

NOTE: This switch is not allowed during an on-going match.

ROUND DESCRIPTION

ROUND 1

In this round there will be a track similar to the surface of mars on which participants have to reach the finish line within a time limit.

The robots least position will be ensured by 5 check points.

ROUND 2

The scoring and the track will remain the same. Only the difficulty level will be increased.

GENERAL RULES:

Once a robot has crossed the starting line it must remain fully autonomous, however touching will be allowed but there would be a penalty for it (extra time will be added to the actual time taken).

Only one robot is to be used per team for both the rounds.

Once used robot, by any team in arena can't be used by other teams.

In the case of time clashing the bot which would reach the 1st check point in lesser time will be considered as the winner. If the time clashes even there, then 2nd checkpoint will be considered.

Robots must have passed the inspection prior to completion.

ROBOT SPECIFICATIONS

Robot dimension & fabrication

The maximum dimension of the robot can be **25 x 25 x 25cm (l x b x h).**

The robot must be autonomous.

Max weight must not exceed **3kg.**

Battery & power

The voltage difference between any two points should not exceed **12 Volts**. Maximum current between two points should not exceed **4 Ampere**

Battery must be mounted on the bot.

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ROBO-SOCCER

PROBLEM STATEMENT

This event is a platform for participants to showcase their robotics talents and also to bring alive the football spirit. They are required to build two manually controlled bots (wired or wireless) capable of playing soccer on an arena specially designed for the robotic soccer match.

GAME PROCEDURE

Each team can have maximum of **4** members.

Each team is allowed to have a maximum of two bots.

5 minutes of setup time will be provided to each team for pre-game setup and testing.

In case of tie 3 min extra time will be given. The team to score first goal during the extra time will win the match. If no goal is scored during extra time, winner will be decided by penalty shoot outs during which 2 penalty shoots will be given to each team in turn. The better of two penalties will be considered to decide the winner.

During Penalty shoots, only one bot (i.e. the striker) will be placed in arena and ball will be placed at the centre of the arena. The team to score a goal in lesser time will be considered winner.

After the first half, goals will be swapped.

GENERAL RULES:-

A team may consist of maximum of 4 members. Students from different institutes may form a team.

Teams will have to report at least 15 minutes before the time slot allotted to them at the beginning of the event, failing to do so may result in disqualification.

No last minute repairs will be allowed in the arena. However, each team can take a time-out of 2 minutes once during a match.

Bots would be checked for their safety before the match and may be discarded if found unsafe for other team or spectators.

Organizers reserve the rights to change the rules at any point of time as they deem fit. The changes will however be highlighted on the website. So keep checking the 'KRONOS15' website for latest updates.

In case of any dispute final decision could be made by judges.

Rules for fouls:-

Any kind of intentional damage caused to opponent team's bot will be considered as foul. Intentional grabbing of the ball so as to make it impossible for other team to get the control of the ball will also be considered as foul.

A free kick will be given to other team in case of fouls during which bots of the team committing the foul will be freeze for 30 seconds and ball will be given to the other team.

In case of repeated fouls yellow card and red cards will be given. If yellow card is given the bot will not be allowed to play rest of the match whereas in the case of red card it will not be allowed to play current as well as the next match.

If a foul is committed inside the D-area, penalty will be given. Decision of the referee will be final and binding.

ROBOT SPECIFICATIONS

Robot dimension & fabrication

The bot must fit into a cube of **(35x35x35**) cm at all times. It may not expand at any time during the match beyond this size even for hitting the ball. Violating this clause will lead to immediate disqualification.

The bots should be controlled manually.

Max weight must not exceed **3kg**.

Battery & power

The maximum potential difference between any two points on the bot should not exceed **24 volts**.

The bots can have on board as well as off board power supply. Teams will be provided 220 volts 50 Hz AC supply.

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RC CANYON RUSH

PROBLEM STATEMENT

Racing has always been an exciting game for the participants as well as for the spectators and when it comes to Robo racing it is something above the ordinary. So get your cars ready for the race. This time KRONOS-15 provides a platform for all the car enthusiasts to exhibit there driving talent in a race by their robots. This time robots are free from wire as it is controlled by wireless remote control.

GAME PROCEDURE

Each team can have maximum of **4** members.

During the match only one team-member will participate in competition (active member). He will be controlling the robot. Teams are allowed to switch the active members in different matches.

Switch is allowed after the completion of lap.

There are 3-5 change points where participants can change robot power supply.

ROUND DESCRIPTION

ROUND 1 (Circuit Round)

It will be a long distance race.

Contestants will have to reach the finishing point in the least possible time. Track Length: - 35-45 meters (approx.)

No. of check points: - 03 (to ensure the robots least position.)

ROUND 2 (Knockout round)

In this round, at the end of every lap last 2 bots will be out. The one which survives till the end is declared as a winner.

GENERAL RULES:-

The team should not consist of more than **4** members.

Each member from same college is not mandatory.

The robot should follow the robot specifications provided. Any deviation from the mentioned specifications will lead to disqualification.

The organizers have the right to change any or all of the rules as they deem fit. Changes in rules, if any, will be highlighted on the website.

Once the race begins, three hand touches are allowed, if you are taking hand touch you have to start from last check point.

Lego kits, readymade kits, car bases and development boards are not permitted. No test practice will be allowed on the main arena.

Terminals for charging the battery will not be provided in the college.

The arena may subject to change before the commencement of any round.

If the Robot crosses a checkpoint, and moves off track, then the Robot would be placed back on the previous checkpoint crossed.

The decision of the judges will be final and abiding. Argument with judges or violation of any rule will lead to the disqualification of the team.

ROBOT SPECIFICATIONS

Robot dimension & fabrication

The maximum dimension of the robot can be **30 x 30 cm (l x b).** The robot must be **wireless**.

Max weight must not exceed **3kg**.

Battery & power

The power supply will be provided maximum up to **18Volt.**

Maximum current between two points should not exceed **4 Ampere**.

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PRINT-A-KART

PROBLEM STATEMENT:

Designing marks as the beginning of the production methodology for any industry. As an upcoming aspirant designer of an automobile industry you have to design a kart which is not only futuristic but also looks winsome.

The motto of the event is to get an amazingly designed KART by the participants with the help of the provided software and cover all the aspects of designing.

ROUND DESCRIPTION:

Round: 1:-This round is a qualifying round in which the participants will be provided with a 2D image, and they need to design the same image as a 3D model. The design with maximum accuracy and minimum time takes will be considered.

Round: 2:-This is the elimination round; the participants have to design a well optimized kart in all aspects. The round's result will be based on time as well as optimization of the kart. FOS, weight and cost will be considered as top priorities. The boundary conditions such as length, width and height will be provided at the time of the round.

Round: 3:-This is the final round; the participants selected for this round have to get their designed roll-cages assembled with the bodyworks and other required accessories. The participants are free to sheet-metal the design or assemble sheets onto the design as per their comfort. This will be a time based round in which a couple of hours will be provided to the participants for the completion of the task.

The design selected the best will be printed by a 3D printer. The final designed product must be solid i.e. no holes are to be made in the design as it cannot be printed. The objects like mannequin and seat shall be provided if asked by the participants.

GENERAL RULES:

The system on which the participants will design will be provided my organizers.

The boundary conditions of the kart like material, track length, track width will be provided at the time when the round starts.

No means of data transfer is to take place by the participants into the systems provided, if found doing so the participant will be disqualified.

The designing in all the rounds has to be done as per the given time, participants failing to do so will be eliminated.

No changes will be accepted in design after Round 2

The participants are bound to use the systems provided by the organizers, the participants are not allowed to use their own laptops or pen-drives.

No extra time will be given.

Changes in rules, if any, will be highlighted on the website.

The organizers have the right to change any or all of the rules as they deem fit. In all cases, the judges' decision will be final and binding.

Software to be used: (Any one is compulsory)

Solid works
Pro-E
Catia

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SITE SPACING

PROBLEM STATEMENT

A great building should speak of its space, design but yearn for timelessness. Make big plans, aim high in work, remembering that the logical diagram once recorded will not die.

ROUND DESCRIPTION:

Round: 01 Phase (A)

This round is a preparatory round. Here participants will have to create positive and negative spaces by overlapping the given shapes. Things to be plotted in the space created will be told later in Round: 01, Phase (B), the shapes to be overlapped will be told at the time of event only. You have to do this in a specified area in the sheets provided. No changes in the sheet will be accepted after this round.

Round: 01 Phase (B)

In this phase, participants will have to design the required model under the space created in round 1, phase (A), adjusting all the required parameters. Requirement can be of a residence, a public building etc. That will be told at the time of event only. You have to do this in a specified area with definite scale and in the sheets provided. Teams selected here will be qualified for round 2.

Round: 02

This is the **Final round**. In this round, participants will have to make the model for real with the help of thermocol sheets. Thermocol sheets and adhesive will be provided by us, rest all the materials required for the model has to be brought by participants only. Participants are allowed to use any extra material such as colors, sheets etc to provide their models attractive look. Recognize the needs properly; it's the primary condition to design. Teams with best model will be declared as winner.

GENERAL RULES:

There are2-**4** participants in each team**.**

No changes will be accepted in sheet after Round: 01, Phase (A).

Only thermocol and adhesive will be provided by us, rest all the required material has to be carried by the participants only.

No extra time will be given.

Changes in rules, if any, will be highlighted on the website.

The organizers have the right to change any or all of the rules as they deem fit. In all cases, the judges' decision will be final and binding.

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FORM WORK

PROBLEM STATEMENT:

Contestants will have to design or make building frame model from their home with the help of bamboo sticks. Participant's model is tested for maximum load to judge the maximum efficiency of the building.

GAME PROCEDURE:

There are maximum **3** participants in each team**.**

Participants will have to submit their design on paper or in AUTOCAD format in first round. Marking depends upon the shape and dimensions of the design.

In next round, Contestants will have to make building frame model from their home with the help of bamboo sticks.

Loading test done by providing uniform load at the top of the frame.

Model which takes maximum load will be given higher marks and according to this marks, they will be provided to the lower frames.

Marks of both rounds will be added and team with maximum marks will be the winner of the event.

ROUNDS DISCRIPTION:

Round 1- In this round all the participants will submit their design on paper sheet or in AutoCAD, hand sketches or progression videos format with proper dimension shown clearly. Marks will be given according to design.

Round 2- In this round model will be judged on the basis of the maximum load it can carry while showing minimum deflection up to their elastic limit.

GENERAL RULES-

Scale used: - 1ft = 1cm.

Floor Area= 900sq ft.(actual)

No. of floors= 4

Lapping should not be more than 1 cm.

You can use only bamboo sticks, thread, and glue for making the model. You can choose any shape for floor plan.

Bamboo sticks used only the place of beams and columns of structure. No additional sticks allowed. The load will be given on top of the building so that top of the model should be flat.

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CYBER WRESTLE

PROBLEM STATEMENT:

This event is completely based on **C/C++/Java** programming languages. The participants have to code according to the problems assigned to them. The coding will be done online at **Code Chef Portal** so participant can practice at **Code Chef** for the competition basically the problems are of school level as given in **Code Chef**.

ROUND DESCRIPTION:

Round 1 (Warm-Up Round)

This round comprises of 5 Problems of School Beginners level and the time limit is 1 hours. Participants have to code the maximum problems in minimum time. Test will be held online at **Code Chef's** website. Here the top 50% participants solving maximum problems in minimum time will go for Final Round.

Round 2 (The Final Countdown)

This round will be the final round and the winner will be decided by the end of this round. The participants have to do their best in this round because it will be the toughest. This round comprises of 3 Problems of School Intermediate level (or Advanced Level) and the time limit is 1 hours. Participants have to code the maximum problems in minimum time. Test will be online at **Code Chef's** website. Depending on the number of problems solved in 'The Final Countdown' and the score of 'Warm-Up' Round the winner and the runners up will be decided.

GENERAL RULES:

This is an **individual** participation event.

The system on which the participants will code will be provided my organizers.

No means of data transfer is to take place by the participants into the systems provided, if found doing so the participant will be disqualified.

The participants are bound to use the systems provided by the organizers, the participants are not allowed to use their own laptops or pen-drives.

Any participant who is found using online text editors and any website other than Code Chef will strictly be disqualified from the event and their participation will be cancelled.

All the programs will be submitted and Code Chef online portal and checked by online compiler.

Note only Notepad can be used for Java Programs and Turbo C/C++ can be used for C and C++ programs.

No extra time will be given.

Changes in rules, if any, will be highlighted on the website.

The organizers have the right to change any or all of the rules as they deem fit. In all cases, the judges' decision will be final and binding.

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GENESIS

PROBLEM STATEMENT:

Mock Placement will provide a virtual platform for students to get introduced to placement procedure in different organizations.

ROUND DESCRIPTION:

Round 1 (*Toss up round / Aptitude / Elimination round)*

Participants will have to go through a 2 written test. The first test consists of 60 questions and the duration of test is 1 hour. The test includes General Aptitude Test and Technical Questions. The Second test consists of Picture Perception Test, in which we will show them a story and student have to write a story on that picture in 10 Minutes.

Round 2 (*Group Discussion)*

Group discussion will be done for all those candidates who qualify the first round. In GD students with similar picture will form a group and discuss on the story further an additional topic is also given to students on the spot.

Round 3 (*Personal Interview)*

This round is the HR round. Personal Interview will cover all the concepts of your branch and also some general things. Feedback will be given for both the 'HR' round and 'Group Discussion' round. After HR round winner will be announced and prizes will be distributed.

GENERAL RULES:

This is an **individual** participation event.

Use of any unfair means lead to direct disqualification.

No electronics gadgets are allowed during round 1.

No extra time will be given.

Changes in rules, if any, will be highlighted on the website.

The organizers have the right to change any or all of the rules as they deem fit. In all cases, the judges' decision will be final and binding.

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*****Participation Fees**

Single Event	**Rs.100 per Participant**
All Tech Events	**Rs 500 per Participant**