



Dr. A.P.J. Abdul Kalam Technical University
Uttar Pradesh, Lucknow

Dr. Abdul Kalam
Arts & Cultural, Sports and Technical, Literary & Management Fest (2019-20)

Zonal Level Centers

S. No.	Zone	District under Zone	Dr. Abdul Kalam Sports Fest (24-26 September, 2019)	Dr. Abdul Kalam Technical, Literary and Management Fest (08-09 November, 2019)	Dr. Abdul Kalam Arts and Cultural Fest (07-08 February, 2020)
1.	Agra	Agra, Aligarh, Mathura, Hathras, Mainpuri	R.B. S. Engineering Technical Campus, Bichpuri, Agra (004)	Vivekananda College of Technology & Mgmt., Aligarh (340)	Hindustan College of Science & Technology, Mathura (064)
2.	Prayagraj	Prayagraj, Jaunpur, Bhadohi, Mirzapur, Sonbhadra, Sultanpur, Varanasi	United College of Engg. and Management, Allahabad (342)	Shambhu Nath Institute of Engg and Tech., Allahabad (162)	Kashi Institute of Technology, Varanasi (428)
3.	Bareilly	Bareilly, Moradabad, Shikohabad, Sitapur	Moradabad Institute of Technology, Moradabad (082)	Shri Siddhi Vinayak Institute of Tech., Bareilly (474)	Shri Ram Murti Smarak College of Engg & Technology, Bareilly (014)
4.	GB Nagar	Noida/ Greater Noida (G.B. Nagar)	Dronacharya College of Engineering, Greater NOIDA, G. B. Nagar (230)	Skyline Institute of Engg. & Technology, Greater NOIDA, G.B. Nagar (153)	I.E.C. College of Engineering & Technology, G.B. Nagar (90)
5.	Ghaziabad	Ghaziabad, Modinagar	Vishveshwarya Institute Of Engg. & Technology, G.B. Nagar (096)	Krishna Institute of Engg. & Technology, Ghaziabad (029)	ABES Engineering College, Ghaziabad (032)
6.	Gorakhpur	Gorakhpur, Gonda, Maharajganj, Basti, Azamgarh, Ballia, Ghazipur	Institute Of Technology And Management, Maharajganj (472)	Rajkiya Engineering College, Azamgarh (736)	KIPM College of Engineering & Technology, Gorakhpur (751)
7.	Lucknow	Lucknow, Amethi, Raebareli, Banda, Hardoi, Kanpur, Barabanki, Jhansi, Ambedkar Nagar, Unnao, Kannauj	Goel Institute of Technology & Management, Lucknow (360)	Rajkiya Engineering College, Ambedkar Nagar (737)	Maharana Pratap Engineering College, Kanpur (046)
8.	Meerut	Meerut, Bagpat, Bijnore, Saharanpur, Shamli, Muzaffar Nagar	J.P. Institute of Engineering & Technology, Meerut (282)	Rajkiya Engineering College, Chandpur, Bijnor UP 246725 (735)	Vidya College Of Engineering, Meerut (229)

Note: In case of any institution not included in this list may report to nearest Zonal Centre.



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Events to be Organized at Zonal / State Levels

S. No.	Dr. Abdul Kalam Arts and Cultural Fest		Dr. Abdul Kalam Sports Fest	Dr. Abdul Kalam Technical, Literary and Management Fest
	Arts Events	Cultural Events		
1.	Cartooning (1)	Battle of Bands/Band wars (4-6)	Athletics (100m, 200m, 400m, 800m, 1500m, 4×100m relay, 4×400m relay, Long jump, High jump, Shot-put, Javelin) (15M/15F).	Business Plan (2)
2.	Collage Making (2)	Fashion Jalwa (1M/1F)	Badminton (4M/4F)	Bridge Kriti (2)
3.	Face Painting (2)	Classical Dance (Indian) (1)	Basketball (10M/10F)	Check Your Knowledge (2)
4.	Mehandi Design (02)	Folk Dance (Indian) (6-8)	Chess (2M/2F)	Coding Contest (2)
5.	Poster Making (2)	Mimicry/Standup comedy (1-2)	KHO-KHO (12)	Debate (2)
6.	Rangoli / Painting (2)	Classical Vocal Solo (Hindustani) (1)	Football (14M)	Elocution (1)
7.	On the Spot Painting (1)	Light Vocal Solo (Indian) (1)	Table Tennis (4M4/F)	Frugal Engineering (Jugad) (3)
8.	T- Shirt Painting (2)	Group Song (Indian) (6-8)	Volleyball (10M/10F)	Just a minute (1)
9.		Folk Orchestra (6-8)		Robo Race (4)
10.		Mime (4-6)		Robo War (4)
11.		Skit/Play (4-6)		Technical Poster (2)
		<i>Nudak Natap</i>		Working Model Exhibition (2) ✓

Note: Bracketed quantities represent the number of Participants / Institute / Event.

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Dr Abdul Kalam Technical, Literary and Management Fest

General Rules & Regulations

1. BUSINESS PLAN

- Team of 2 members will participate in the event.
- Participants have to explore business ideas to run the business.
- The means of communication will be English.
- Each team will get max. 15 min. to present the idea and 5 minutes for question answer by judges.

2. BRIDGE KRITI

- All the required materials (including consumables) and tools are to be brought by the participants. No material, tool, etc. will be provided by the organizers.
 - Each team can have 2 members. Design a bridge of given specifications satisfying the stated constraints using popsicles (ice-cream sticks).
 - Span length: 60-65 cm and width: 10cm at both ends
 - Height of the horizontal span: 11 cm (max.) from the ground
 - Stick overlapping should not exceed 3 cm.
 - Crown of arch (if arch shaped bridge) must be above horizontal span and its height should not exceed 20 cm.
 - **Round 1:** The bridge will be checked by the organizers regarding span, width, height and material constraints. The bridge satisfying all the conditions of round 1 will be allowed for next round.
 - **Round 2:** The upper deck will be subjected to concentrated loads. The loads applied will be gradually increased on the weighing support hung at Centre of the upper deck of bridge till failure.
- Note:** Failure is defined as, if structure breaks at any joint or if there is a sound of breakage and deflection at Centre of bridge reaches 2.5 cm.

3. CHECK YOUR KNOWLEDGE- QUIZ *Technical*

TEAM COMPOSITION: 2 members

Team per College: only one

REGISTRATION RULES

- Both the members for quiz must be from the same college or institute.
- In case of tie, the decision will be made by a tie breaker round between the teams.
- There will be four rounds and decision of the QUIZ Coordinators will be final and binding to all.
- Questions will be of general awareness type.

Quiz-1st round:

- It would consist of 20 questions of 2 marks each. Top 8 Teams will be selected for the 2nd round.
- 2nd round will consist of 2 sub rounds.

Leader- 2nd A round:

- Each team will face 4 questions carrying 10 points each and no deduction from earned points on a wrong answer.
- For no answer attempted, question will be passed to next team it will be given chance to answer the question in 5 seconds and 5 point for right answer will be awarded.
- The team which answers all questions correctly will get an extra bonus question of 30 points.

Audio/Visual- 2nd B round:

- Each team will face 1 audio/video clip carrying 20 points and no deduction from earned points on a wrong answer.
- This round will be eliminator round also only top 6 teams will lead to 3rd round.

Play- 3rd round:

- Each team will be given 3 minutes in which they can face at max 10 number of questions within the given time frame.
- One team will be eliminated at the end of this round.
- Each Correct answer will be awarded 10 points and each wrong answer will take away 5 points
- If in case number of continuous skipped questions exceed 3 then a penalty of 50% on earned points will be imposed.

Ring - Final round:

- This will be a buzzer round for 3 questions, each correct answer will add 50 points to the score card and each negative answer will take away 30 points out of their score.
- In case of Tie 3 additional questions of 40 marks will be asked to all the 5 teams.

4. CODING CONTEST (17)

- Duration: 45 minutes per round
- No. of Rounds: 2 Round 1: 5 Problems Round 2: 3 Problems
- Participation: Team of 2
- Judgment will be made on following criteria:
 - Maximum no. of programs
 - Problems solved in least time
 - Program Efficiency
- One may bring their Laptop else computer (without internet) will be provided.
- Implementation Language- *C/C++/Java/Python* (any one)
- Participants will be responsible for their own IT equipment, such as laptops or mobile devices.

5. DEBATE: ENGLISH/HINDI ₹

- Each Institute will be represented by two debaters.
- Out of the two debaters, one will speak FOR, while another will speak AGAINST the motion.
- Medium of expression will be Hindi or English.
- Topic of debate will be announced 24 hours in advance.
- Each debater will be allowed to speak for maximum five minutes in the Zonal Festival and 10 minutes in the State Festival.
- There will be additional 2 minutes of time for questions (questions may be put up by participants, judges or any person present in the audience).
- The participant shall mention, at the time of registration, their choice of 'FOR/ AGAINST'.
- Judgment criteria:
 - Presentation / Expression (Assertiveness, verbal/nonverbal communication etc) (10 marks)
 - Content / Data citations (10 marks)
 - Questions / Rebuttal (10 marks)
 - Total: 30 marks
- Any type of reading is not allowed during the event.

6. Elocution ₹

- Each Institute will be represented by one speaker.
- Medium of expression will be Hindi or English.
- Each speaker will be allowed to speak for maximum five minutes in the Zonal Festival and 10 minutes in the State Festival.
- Subject / Topic of Elocution will be announced in the Coordinators meeting.

- The performance will be judged in one language.
- The item shall be prose or poetry and not song.
- The sequence of speakers will be decided by a draw of lots.

7. FRUGAL ENGINEERING / JUGAD

- Participation will be as team of maximum 3 members.
- Participants have to bring their stuff (scrap) by their own.
- Use of colors or any other decoration material is strictly prohibited.
- Decoration and customization have to be done with scrap material only, if required.
- No add on decorative material or color is permitted.
- Participants have to bring adhesives, scissors or any other cutting tool with themselves.
- Item to be made can be of any nature i.e. any engineering or general use.
- The duration of event is one hour.
- Participants will be intimated about the time 15 minutes before the end of time.
- Participants have to explain the concept what they made.

8. JAM E

Just-A-Minute (or JAM) is an all-round-fun event that is all about the control of the mind over the mouth. Can you make it through sixty seconds of non-stop talking without hesitation, repetition, or deviation? Or will the sheer pressure make you crumble and have your competitors pounce on you in an instant?

Participation: Team of 1 member

The rules:

- The JAM master is god. No questions or arguments once the final decision has been made
- To object, slam the table and say "JAM". The JAM master decides when you are allowed to put forth your objection.
- You get a penalty if the competition objects on any of the following counts-
 - ✓ You object out of turn
 - ✓ You stutter, stammer, and generally indulge in "time-wasting tactics". These include to buy time like interspersing your talk with "uhh", "aah" etc...
 - ✓ Early start and late start
 - ✓ Speaking too fast or too slow
 - ✓ Grammatical errors
 - ✓ Undue stress on words, undue emphasis in the sentences
 - ✓ Repetition of a previously used idea
 - ✓ Not following the "random rules" as set by the JAM master. For example, the most popular random rule was "Praise Guntas before objecting". If you forget to do so or the JAM master thinks that the praise was not good enough, you will not be allowed to object and lose points for an incorrect/bad objection.
- The total time is sixty seconds, inclusive of all the time that all the speakers in a given round are allowed to speak
- Points are given in the following manner:
 - a. Positive points for every second that you speak
 - b. Positive points for every correct objection
 - c. Negative points for every incorrect objection
 - d. Bonus points for being the last speaker
- The winner will be the person with the maximum number of points at the end of the round.

9. ROBO RACE

You think it is as easy as it sounds? Think again. This is the grand prix of all Robot races. Make sure your bot has the same grit and brawn as you to handle the heat of our tracks here.

- Build a manually controlled robot which is capable of racing on a rough circuit full of twist & turns.
- In the shortest period of time, it must be able to complete the track specified.

GENERAL RULES:

- Team can have a maximum number of 3 members. Each member from same college is mandatory.
- The robot should follow the robot specifications provided. Any deviation from the mentioned specifications will lead to disqualification.
- A team is allowed to play with only one robot.
- 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.
- Touching the robot during the game will lead to negative points.
- In case of wired robot the wire should remain slack throughout the race. It should not disturb the arena or the participants. If so then the team will be disqualified.
- Unfair game may lead to disqualification of the team.
- The robot should not damage the field. Damaging/harming the arena may lead to disqualification.
- The decision of the judges will be final and abiding. Argument with judges in any form will lead to the disqualification of the team.

EVENT RULES:

- The structure of the robot should not be changed during the competition.
- During the game play, if any part of a robot is destructed/ dismantled/ damaged the participant will be given a timeout to repair at an expense of a penalty, while the next participant for will be called the play.
- Only 1 timeout will be given for any participant and the participant will repair it without the help from the mentor.
- No readjustment is allowed during the run.
- If the Robot crosses a checkpoint, and moves off track, then the Robot would be placed back on the previous checkpoint crossed.
- The game play consists of two rounds (a qualifying round and a final round)
- The participating teams will drive their robot individually in a track.

Qualifying Round

- A total of 5 minutes run time (arena time) will be given to every participant.
- A trial round will be given to each team then team has to perform on track with maximum time of 5 minutes.
- The better of 2 scores will be considered as final.
- If the total time taken by the robots exceeds 5 min's the participation would be disqualified.
- The time taken to complete the circuit including penalty and bonus points will be taken as your qualifying time.
- Each time the robot touches either one of the boundaries, there will be a penalty of +2 seconds.
- The other penalties, bonus and scoring points will be informed on the spot.

Final Round

- Based on the qualifying time of each team, top 6 teams will make to the final round.
- Only 1 attempt will be allowed in final round.
- If the total time taken by the robots exceeds 5 min's the participation would be disqualified.

- The time taken to complete the circuit including penalty and bonus will be taken as your qualifying time.
- The three teams with minimum qualifying time will be declared as winners.

BOT SPECIFICATIONS:

- Lego kits/Toy cars are strictly not allowed in any form.
- The ROBOT can have a maximum dimension of 350 x 350 (l x b) (all in mm) with a tolerance of 5%.
- The maximum potential difference between any two points should be 12 volts DC.
- Robot must have power supply on board. There will be no provision of external power supply.
- The maximum weight of robot can be 5kg.
- The robot can be controlled by wired/wireless mechanisms.
- It should be controlled by a single person at a time.
- If the robot is controlled by wireless mechanisms, the robot must have a frequency remote control circuit which can avoid frequency interference with other teams.
- The length of the wire (for wired bots) should be long enough to cover the whole track (around 17m or more) and the wire should remain slack during the complete run.
- Robot must have only a single transmitting device.

FIELD SPECIFICATIONS:

- The track length and the number of laps will be revealed on the spot.
- The track will be provided with cushion along the edges of about few cms height to keep the bot within the track.

Eligibility:

All regular students with a valid identity card of their respective educational institutes are eligible to participate in the event.

10. ROBO WAR

TASK

Design and construct a remote-controlled robot capable of fighting on one to one basis.

GAMEPLAY

- Teams shall compete against other teams and remain safe from the weapons on arena to be chosen at the discretion of organizers by a specific procedure.
- The event consists of eliminator rounds & Finale.
- Eliminator 1 would be of 5-minute duration followed by Eliminator 2 of 3 minutes duration and any other subsequent rounds and Finale would be of 2-minute duration.

GENERAL INFORMATIONS

- Team Specification: Any team can participate in Robowar. A team may consist of a maximum of 4 participants.
- Team Name: Every team must have a name which must be unique. Organizers reserve the right to reject entries from any Team whose name it deems inappropriate, offensive or conflicting. Organizers must be notified if a team's name has been changed.
- Team Id: A team Id would be provided to each team and will be used as a mean for carrying out communication for all purposes.
- Team Representative: Each team must specify their Team Representative (Leader) at the time of registration. All-important communications between the registered teams will be done through their Team Representatives. The Team Representatives must submit valid contact details (phone no., email ID etc.) at the time of registration.

BOT SPECIFICATIONS

Dimensions and Fabrications

- The machine should fit in a box of dimension 650mm x 650mm x 800mm (l x b x h) at starting point of the match.
- The machine weight should be 20 to 30 kg including the weight of pneumatic source/tank.
- The external device used to control the machine or any external tank is not included in the size constraint.
- The battery will be taken into consideration for the measurement to be made for the machine dimension and weight.

Power Sources

- The machine can be powered electrically only. Use of an IC engine in any form is not allowed.
- Each team must prepare its own power sources. The teams have to bring their own battery eliminators.
- The voltage difference between any two points in the machine should not be more than 36V DC at any point of time.
- All connections should be made safe to prevent short circuits and battery fires. Any unsafe circuitry may be asked to be replaced; failure to do so will result in disqualification.
- Use of damaged, non-leak proof batteries may lead to disqualification.
- Change of battery will not be allowed during the match
- No provision will be provided for charging of batteries.
- It is suggested to have extra batteries 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.

Mobility

Methods of mobility may include:

- Rolling (wheels, tracks or the whole robot).
- Walking (linear actuated legs with no rolling or cam operated motion).
- Shuffling (rotational cam operated legs) Jumping and hopping is not allowed.
- Flying (using aero foil, helium balloons, ornithopters, etc.) is not allowed.
- Any other method of mobility which leads the robot to lose contact with the ground is not allowed.

Robot Control Requirements

- Only wireless remote controls are allowed in the event.
- The wires inside the bots should be properly protected and insulated to prevent fire.
- The remote should have at least two frequency operations to prevent interference with other team.
- The robot wireless systems must have a way to change frequencies or coded channels to prevent radio conflicts.

Weapon Systems

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

- Any kind of inflammable liquid / liquid projectiles.
- Smoke or dust-based weapons.
- Flame-based weapons.
- Any kind of explosive or intentionally ignited solid or potentially ignitable solid.
- Nets, tape, glue, or any other entanglement device.
- High power magnets or electromagnets.
- Radio Jamming, Teasers, 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 any point of time are allowed.

Pneumatics and Hydraulics

- The robot must use non-inflammable and non-corrosive fluids to power pneumatic and hydraulic devices.
- Maximum pressure in the tank containing pneumatic fluid should not exceed the limit of 10 bars at any point of match and there should be a provision to check the pressure in the tank.
- All hydraulic liquids are required to be non-corrosive and your device should be leak proof.
- Participants must be able to indicate the used pressure with integrated or temporarily fitted pressure gauge.
- You must have a safe way of refilling the system.
- All pneumatic components on board a robot must be securely mounted. Care must be taken while mounting the pressure vessel and armour to ensure that if ruptured it will not escape the robot.

GENERAL RULES

- Event consists of one round of five minutes duration.
- Maximum team size for each robot is limited to four members.
- Any team that is not ready at the time specified will be disqualified.
- Arena should not be damaged by any robot in any case.
- Organizers reserve the rights to change the rules as they deem fit.
- If a robot is deemed unsafe will be declared as disqualified.
- If a robot is thrown out of arena the match will stop immediately and robot inside the arena will be declared as winner.
- Robot is declared as victorious if its opponent is immobilized means not able to move even an inch in 30 seconds. In case both robots remain mobile after the war then winner will be decided on the basis of criteria described in scoring section.
- Pinning or lifting of robot is allowed only for 20 seconds.
- If two or more robots become entangled or crushing or gripping weapons are employed and becomes trapped within other robot then the competitors should make aware the time keeper and fight should stop and resume after separating the two robots by safety means.
- For any rule violation robot will be disqualified.
- Judge's decision will be final and binding to all.

SCORING

Points will be given on the basis of following:

- Aggressiveness (10 pts)
- Damage (10 pts)
- Self Defense (10 pts)
- Points will be awarded, once in a round, if the bot reaches opponent's starting point, which can be referred to as safe zone.
- Points of the opponent team will be deducted if their bot is pushed into the Danger zone (Remaining corners of the arena apart from safe zone).
- In no case should the arena be damaged by any bot otherwise points may be deducted.
- The Rules and scoring system are bound to change according to decision of coordinators and teams would be notified accordingly.

SAFETY RULES

- Compliance with all event rules is mandatory. It is expected that competitors stay within the rules and procedures of their own accord and do not require constant policing.
- Special care should be taken to protect the on-board batteries and pneumatics, robot without proper protection will not be allowed to compete.
- If you have a robot or weapon design that does not fit within the categories set forth in these rules or is in some way ambiguous or borderline, please contact the event organizers. Safe innovation is

always encouraged, but surprising the organizers with your brilliant exploitation of a loophole may cause your robot to be disqualified before it even competes.

- Each event has safety inspections. It is at their sole discretion that your robot is allowed to compete. As a builder you are obligated to disclose all operating principles and potential dangers to the inspection staff.
- Proper activation and deactivation of robots is critical. Robots must only be activated in the arena, testing areas, or with expressed consent of the event coordinators.
- All weapons must have a safety cover on any sharp edges.
- All participants build and operate robots at their own risk. Combat robotics is inherently dangerous. There is no amount of regulation that can encompass all the dangers involved. Please take care to not hurt yourself or others when building, testing and competing. Any kind of activity (repairing, battery handling, pneumatics systems etc.) which may cause damage to the surroundings during the stay of the teams in the competition area should not be carried out without the consent of organizers. Not following this rule may result in disqualification.
- All the resources provided at the time of competition from the organizers should be strictly used only after the consent of the organizers.
- Once the robots have entered into the arena, no team member can enter into the arena at any point of time. In case if a fight has to be halted in between and some changes have to be done in the arena or condition on the robot(s), it will be done by organizers only.

11. TECHNICAL POSTER MAKING

Engineers, like all professionals, must possess a well-developed ability to communicate. This poster competition is designed to emphasize the ability to deliver a visual presentation. Subject matter is to be related to engineering.

RULES - Failure to abide by the following rules will disqualify the poster.

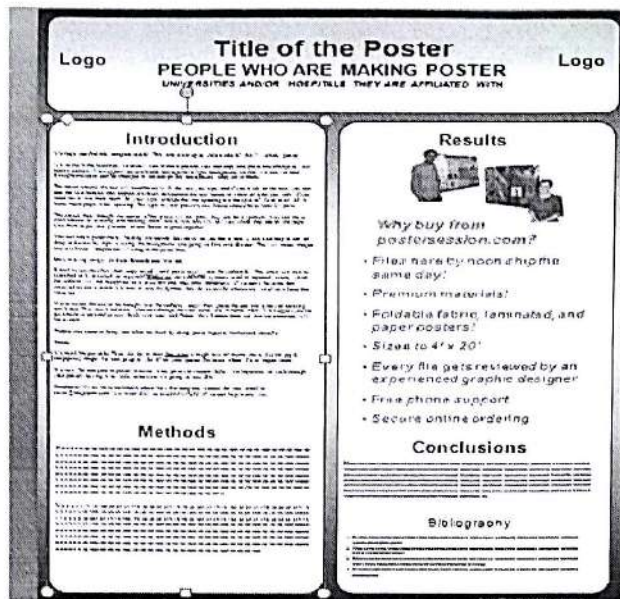
- The subject matter of the poster must address a technical, economic or environmental aspect of engineering, or other basic engineering theme, provided it pertains to some sphere in which an engineer is or should be involved
- Each poster may be no larger than 48 inches (122 cm) by 36 inches (91.4 cm) unfolded. Posters may be assembled using A4, A5 or 8½" by 11" paper panels.
- Except for fasteners (such as thumbtacks) all poster material must be flush with the board, not protruding more than 1/8 inch (3.2 mm).
- There may be no mechanical or electrical devices attached to the poster.
- There may be no materials placed in front of, above, below, or to the side of the poster.
- All material must be accessible without having to lift or turn a page.
- Each entry may have maximum 2 members in a team.
- The poster title, name of student and university logo must be at proper place on the Poster.
- A sample template is attached for reference.
- The posters should be made only at the time of the events. Previously printed or made pieces will not be allowed.

Topics: The theme for all participants are:

- Energy conservation
- Environmental protection
- Biofuel production
- Electronic waste management
- Application of Artificial Intelligence
- Smart Grids: Future of Power System
- Mechatronics
- Smart Buildings
- IoT
- Advance Communication Systems.

- Smart Materials: Innovation at Nanoscale
- Green Chemistry – Leading to Promising Future.
- Smart Cities in 2050- Future of engineering
- Space research program in India

Templates:



12. WORKING MODEL EXHIBITION

Theme: Solid waste Segregation

"Waste segregation" means dividing waste into dry and wet. Dry waste includes wood and related products, metals and glass etc. Whereas, wet waste typically refers to organic waste usually generated by eating establishments and are heavy in weight due to dampness. Therefore, Waste sorting is the process by which waste is separated into different elements. Waste sorting can occur manually, semi-automatically or fully automatically. This theme of Solid waste segregation satisfies the requirement of Swachha Bharat Abhiyan of Government of India. Therefore, developing some economic viable working models (only semiautomatic or fully automatic) capable of separating the different types of waste (e.g. metal, plastic, polyethylene, domestic waste like vegetables, food items etc.) may be an approach to support Swachha Bharat Abhiyan of Government of India.

Rules:

- Each team will consist of 02 members.
- The working model must support the theme of the exhibition strictly.
- The model must be Semi-automatic or fully automatic.
- The size of the model during display should be $1 \times 1 \times 1 \text{ m}^3$.
- The participants have to explain the concept, novelty, economic viability and functionality of the working model.
- The Judges' decision will be the final and binding to all.