

QUIZZES

Checkmate:

“Testing your brain to its limits is the most efficient way of developing it.”

Come and challenge your brain to mind numbing Brain Teasers and Logical Puzzles set against an interesting storyline.

Eligibility:

- All students that are eligible to participate in APOGEE 2017

Rules:

- Duration of the event will be 3 hours.
- The questions will be based on logical reasoning.
- No prerequisite knowledge is required. It is just aptitude based.
- Students must participate in teams of 2.
- Registrations will be done on the spot on a first come first serve basis.
- Any team(s) found guilty of malpractices will be debarred.
- The decision of the authorities will be final and binding.

Judging Criteria:

- The team that solves the maximum questions in the minimum number of time shall win Checkmate.
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Astronomy quizzing event.

Eligibility:

- Everyone is allowed to participate in the event.
- Extensive knowledge in astronomy is not necessary. Only high school level physics, astronomy and creativity are required.

Rules:

- Participate individually or in teams of 2.

Contest: The event will consist of two rounds

- Round 1: This round will have 10-15 objective questions. With a little knowledge of physics and fair bit of logical reasoning, you will be able to ace this round. Top eight teams will go in the next round.

- Round 2: This round will take you to 5 different hypothetical scenarios and you have to build a theory/hypothesis or do a numerical analysis to explain the cause or the consequences of the said hypothetical scenario.

Judging Criteria:

- For round 1, marking will be direct and will be disclosed during the quiz.
 - Judging of round 2 will be based on the creativity of the theory developed and scientific correctness.
 - The quizmaster has the final say in all clashing matters
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Unravel

This is a quizzing event where some simple logical reasoning questions will be given a face of Biology. There will be three rounds, as rounds proceed questions will become interesting and engaging. In later rounds, questions will be based on some interactive demonstrations and videos. There is no pre-requisite of any Biological information, you just need to use your brain to get the answers.

Qrious:

"A deception that elevates us is dearer than a host of low truths."

An online quizzing event.

Based on the theme, Retrofuture you will find various pic-connect questions. The participant gets to progress to the next level only after correctly answering the present.

Eligibility:

- Open to all

Rules:

- Pre Apogee Online event.
- Single person event.
- You will have to solve a question to proceed to the next question.
- Maximum 3 skips allowed.

Judging Criteria:

- The one with the highest score wins
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Biz Quiz:

Do economics and finance interest you? This quiz tests will challenge your knowledge, test your limits and broaden your horizons.

Rules:

- Teams of three or less
 - Bring a pen
 - Registration is on-the-spot
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India Quiz:

Introduces you to the different facets of India which you might have seen or heard but never experienced and promises a whirlwind tour of the country. Hosted by Sameer Tharoor.

Rules:

- Participants must come in teams of not more than three.
- Participants can register on the spot for the event.
- Team members need not be from the same college.
- In case of any discrepancy, the decision of the quizmaster will be regarded as final and binding.

Contest:

- Two Rounds- Elims and Finals.
- Top 10 Teams will be selected for the final round after the elimination.

Eligibility:

- Quiz is open to all registered participants of APOGEE.
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Marooned:

Kvothe is an intergalactic traveler, left on an unknown planet he has to find his way back home by using physics and astronomy. Help him in his adventures by solving his challenges using basic physics and astronomy trivia. All the challenges will have a multimedia file attached depicting different scenarios around Kvothe.

Eligibility:

- Everyone is allowed to participate in the event.
- Extensive knowledge in astronomy is not required. Only high school level physics, astronomy is required.

Rules:

- Participate individually or in a team of 2.
- Event will be divided in two rounds

- I. **Round 1:** round one will consist of 10-20 objective questions depicting Kvothe's journey. Top eight teams will move to the next round.
- II. **Round 2:** Three video clips will be played and using these videos as reference few challenges which Kvothe will face have to be solved.

Judging Criteria:

- For round 1 and 2, marking will be direct and will be disclosed during the quiz.
 - The quizmaster has the final say in all clashing matters.
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Overhead Transmission:

Think you know it all? Test how you would fare against the best in this open-to-all quiz, about anything under the sun.

Rules:

- Teams of 3 or less
 - Bring a pen
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Science and Technology Quiz:

Quiz based on latest science and technology happenings.

Rules:

- Teams of 3 or less
 - Bring a pen
 - Registration is on-the-spot
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APOGEE Innovation Challenge:

APOGEE Innovation Challenge, an exceptional technical symposium, aims at quenching your thirst for hands-on experience in real life problems plaguing the industrial world.

Organized in collaboration with various multinational companies, this event presents before you existing challenges faced by these companies who seek their solutions from you. These problems, which happen to be discipline specific (one need not belong to that discipline), are to be solved by participants in teams of 2-4 in a month. After scrutiny by company officials, top 5 teams will be presenting their final solutions during APOGEE '17. Exciting Internship Offers and Cash Prizes await the winners. Needless to say, you can brag about cracking a professional challenge while still being in college. Participation Certificate shall be given to all members of each team which present solutions during APOGEE '17.

Rules:

- Participants can form teams of 2-4

- The participants would be given a period of 28 days from the day of release of the problem statements to work on the problem and revert back.
 - The registrations for the preliminary round shall start from January 25th.
 - The participants must upload the abstracts preliminary solutions in the form desired by the companies (files, report, etc.) on the portal given on the APOGEE Website by February 22nd at the latest.
 - The preliminary solutions will be scrutinized by the company and the best 5(maybe more) teams are selected .The selected teams have to present a detailed presentation/prototype of their solution to the company officials during APOGEE 2017.
 - Internships or cash prizes will be awarded to the winners by the companies from each category.
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Brain of BITS:

Eligibility:

- This event is ONLY for BITSians.

Rules:

- Lone Wolf
 - Bring a pen
 - Registration is on-the-spot.
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Word Amaze:

Contest: 3 rounds:

- Hangman: An incomplete Hindi word will be displayed. The word is to be identified with help of 4 clues which will be displayed one by one.

On answering through first clue, 40 points will be awarded .After the second, third and fourth clue, 30, 20 and 10 points will be awarded respectively.

- Rapid Fire: In this round, 10 miscellaneous questions are asked in 1 minute. For each question, 5 points will be awarded.

- Grand connect: In this round, a word is to be guessed with the help of video, picture and text related to that word.

For the correct answer, 20 points will be awarded while for an incorrect answer, 5 points will be deducted.

Jeopardy:

A quiz with a twist. Get your questions answered before you can ask them. Requires you to plan the

questions you answer or ask rather. This event will give you a taste of the twisted TV show as well as the usual quizzing trivia!

Eligibility:

- Everyone is allowed to participate in this event. No pre-requisites required.

Rules:

- Teams of 2.
 - Prelims round will reduce the participation to 18 teams. It is followed by Eliminations from which 6 teams will get selected to the finals. The finals, based on the Jeopardy board style, will have a number of rounds with the highest score deciding the winner.
 - Bring a pen along.
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Wordstock:

A cascade of brain-teasing puzzles that subscribe to different types of wordplay. The participants are given to solve several word puzzles like trixies, cryptic crosswords, etymology based questions etc. which they have to solve in the given time period. The event tests one's logic, vocabulary, creativity and command over the English language. There is a prelims pen-and-paper based round after which 6 teams will be selected for an interactive finals round.

Eligibility:

- Anyone can participate.

Rules:

- Teams of two.
- Bring a pen along.

Judging Criteria:

- Each of the several rounds will have a marking scheme. The teams which scores the most wins the event.
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Lit Quiz:

Eligibility:

Quiz is open to all registered participants of APOGEE

Rules:

- Maximum of 3 members per team
- On the spot registration
- Team members need not be from the same college

Judging Criteria:

- The quiz will be conducted in multiple rounds, with the first one being an elimination round.
 - The quizmaster(s) may select between 6-8 teams for the next round, as per their discretion.
 - The points-system for the successive rounds will be announced at the time of the quiz.
 - The quizmaster's decision is final and binding on all issues relating to marking and answer
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Doper's Quiz:

Doper's Quiz is an online quizzing event to test your logic relating to narcotics.

The answers are not always drugs ;)

REMEMBER: "Knowledge is the prime high."

Rules:

- Participation will be on individual basis.
 - Only when a question has been answered will the next question pop up.
 - Bitsians or Non-Bitsians, anyone can participate.
 - Two lifelines will be provided at different stages of the competition
 1. Know My Number: This lifeline would provide the participants with the number of letters in the answer. This would be available from the beginning.
 2. Sneak Peak: This lifeline would be made available once you've answered the first 15 questions correctly. The use of this lifeline would be to provide the first and the last letter of the answer.
 - Total no. of questions would be 50
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Lawless:

Check your knowledge in physics. You will be given the problems and by making modifications in the laws of physics, you have to give the solution. This will check your basic concepts in physics.

Rules:

- On spot registration
- Come in teams of two

Contest:

This will have three rounds

- First Round- A set of multiple choice questions on basic concepts of physics. The teams which scores most will qualify for next round.

- Second Round- Around twenty teams will be selected from first round. And in this round the teams will be given some pictures showing different phenomena of physics and the teams have to guess the phenomena.
 - Third Round- This will be the final round and in this round around five teams will be present. This will be Buzzer round teams will be given question in form of pictures and audio and they will have to answer these question. The team which answers first gets the point and the team with highest score wins the game.
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CODING

Smash The Bug:

"Two days before her birthday, Alina's mother got hit by a ransomware attack. 5,726 files got locked by CryptoWall, an encryption malware so powerful it is technologically impossible to break open." Will you be able to decode all the data to save her family?

Eligibility:

- All are welcome.
- Participants with little knowledge of Ethical Hacking are most welcome.

Rules:

- On-Campus event
- Single player event.
- The contest would be of 2 hours duration.
- Bugs with increasing complexity.
- Use of internet will not be permitted.
- Use of mobile phones or other electronic media will lead to disqualification.

Judging Criteria:

- The team with the maximum score will be declared winner.
 - In case of tie, the time of submission will be considered to decide the winner.
 - The decision of the judging committee will be final and binding.
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Math-e-Magic:

This event will serve you with challenging mathematical/computer programming problems . Although mathematics will help you arrive at elegant and efficient methods, the use of a computer and programming skills will be required, There will be 10 problems which will test both your dimensions.

Eligibility:

- All the students studying in colleges in India are eligible.

Rules:

- Participation will be on individual basis.
- Duration of the final round is 3.5 hours.
- Any form of malpractice shall lead to disqualification of the team(s).
- The decision of the authorities shall be final and binding.
- Maximum RAM that you can use is 256 MB.
- There is limit set on size of the code submission which is 50kB.
- The participants are expected to solve certain algorithmic problems using any programming language(supported on OJ).

Judging Criteria :

- An automated judge shall test the output of your code against the standard test cases. Your code's runtime should not exceed a maximum limit.

Resources: Sample contest problems can always be viewed at: <https://projecteuler.net>

Dealing with Distractions:

“Time to starve your distractions and feed your focus”

Many of you must be great at solving the mind boggling puzzles and riddles isn't it? Well, it's time to spice it up a bit!

Eligibility:

- All students that are eligible to participate in APOGEE 2017 are eligible

Rules:

- Individual participation.
- Duration of the event will be 90 min.
- The main questions of the event will be based on aptitude and logic.
- The points allotted to each question will be based on the difficulty level.
- The distractions would pop up randomly for a short duration and will carry some bonus points if completed within that duration.
- No prerequisite knowledge is essentially required. Little bit basic coding knowledge may be bit helpful.
- Any form of malpractice would lead to disqualification.
- Authorities' decision will be final and binding.

Judging Criteria:

- Participants with maximum points at the end of the event will win.

ICL:

“FIRST SOLVE THE PROBLEM,
THEN WRITE THE CODE” – John Johnson

Do you think you have mastered Competitive coding ,the greatest mind sport? Here’s your stage to step on and prove your coding skills – A challenging stage, a nail biting one!

Eligibility:

- Students pursuing Undergraduation program from all colleges in India are eligible.

Rules:

- The contest is divided into two stages.
- Only teams of two are allowed to participate.
- The first stage will be held online nationwide.
- The qualified contestants will be invited on campus for the second and final stage.
- The second round will be for a duration of 3 hours.
- Any form of malpractice will lead to disqualification.
- Authorities’ decision will be final and binding.
- The participants are expected to use either of C, C++, Java to solve the problems.

Judging Criteria:

- An automated judge shall test the output of your code against the Standard test cases. Your code’s runtime should not exceed the maximum limit. Maximum RAM that can be used is 256MB.

Resources:

Participants can view sample problems on the following sites:

- <http://www.codechef.com>
 - <http://www.spoj.com>
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Anticoding:

Anticoding is an on campus event in which participants need to write code unconventionally. Based on a yearly theme- one code is made a brain teaser for another.

This year’s theme: Code Obfuscation.

Rules:

- On-spot registrations 30 minutes prior to commencement of the event
- On-spot problem statement
- Teams of maximum two.
- Use of internet will not be permitted.
- Use of mobile phones or any other electronic media will lead to immediate disqualification.

Contest: The event will comprise of 2 rounds:

1. This round will involve some basic questions on programming and aptitude to ensure a minimum programming capability of the participants required for the next rounds. The teams selected for the next round will be solely selected based on their score in this round.
2. Qualified teams enter the final round where each team shall be given a problem statement. This will be a simple problem like printing a factorial but the aim of code would be minimizing the ASCII sum of the code with some constraints. Code must be written in C language. Each team will be required to try to make their code as small as possible and using characters with lesser ASCII value. The teams shall submit their codes for the problem after 45 minutes after the commencement of this round.

Judging Criteria:

- The team's code will be evaluated as a function of ASCII
- In case the tie is still unresolved, the score for the previous rounds will be considered.
- The decision of the judging committee will be final and binding.

Eligibility:

- You must be an undergraduate/graduate student of the college that you mention.
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C-Doku:

C-Doku is an on campus Apogee Event.

Eligibility:

- All are eligible.
- Those who know how to solve Sudoku and C-language problems are most welcome

Rules:

- Teams of maximum 2.
- The contest would be of 3 hours duration.
- Use of internet is not permitted.
- Use of mobile phones or other electronic media would lead to disqualification

Contest: It consists of two rounds.

1. The first round consists of solving the Sudoku based on solving a few number of C/C++ questions. Round 1 is a paper based event for max time 75 minutes.
2. The second round consists of finding the number of solutions of Sudoku that are possible given there are few entries in the Sudoku. The participants would be given GCC compilers for Round 2

Judging Criteria:

- Judging for Round 1 will be based on the extent to which Sudoku is solved.
- Judging for round 2 will be based on proximity of the answer. Exact answers will be given high priority.

Hackathon:

Have you ever dreamt of building something, which addresses the challenges related to life-changing problems or is even used by millions of people across the globe? If yes, then your ticket to turning this enthralling thought into reality is right in front of you. BITS-Pilani presents the premier Hackathon this APOGEE 2017 where we gather some of the best minds in the country to create apps for a better world. Come be a part of an all-round event where developers from entire country participate in a 12 hour long app making contest.

Interesting tech talks, hacking tips and lessons, coding workshops and weekly problem statements await you.

It is an event with open problem statements. Propose an idea and code it up.

Eligibility:

- All students eligible for participation in APOGEE 2017 are eligible for participation in this event.
- Maximum team size is 4.
- Students from different educational institutes are allowed to collaborate to form a team.
- A given student can be part of a maximum of 1 team.

Rules:

- Team size should be at most 4.
- It is an open problem statement event. One has to submit their idea before start of the event on the portal that will be up just before the event kicks-off.
- All the coding should be done during the event.
- Participants are expected to bring all tools and software necessary to build the problem statement. Organizers will provide power strips.
- Contest is open to developers worldwide.
- The contest will go on for 12 hours (tentative) which will have two refreshment breaks in between.
- Rules are subject to change.
- Disqualification Criteria: Your Entry will be instantly disqualified if your code DIRECTLY calls un-managed code or DIRECTLY reads, writes or executes any database object other than those created by your module.

Judging Criteria:

- Degree of how best your solution solves the given problem.
- User Experience: Ease of use of application.
- Level of Innovation.

- Efficiency in terms of Speed.
 - Any change in judging criteria would be notified to the participants beforehand.
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Inventrom IoT Workshop & Hackathon:

The Internet of Things (IoT) is an environment in which objects, animals or people are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction. IoT has touched significant aspects of human lives and changed them in ways myriad and is bound to get bigger in the coming future.

This Apogee, IoT Challenge gives you an opportunity to let go of your IoT inquisitions and realize the dreams, where the tools shall be provided by Inventrom, the makers of the industry revolutionising BOLT IoT platform.

Rules:

- Teams of four to five students are allowed.
- After a 2-day workshop on the BOLT platform, there will be a 12hour IoT hackathon. 6 workshops Kits for the hackathon and the workshop will be provided. The workshop will not be free.
- The problem statements and categories for the hackathon will be shared at the end of the workshop. There would be one open category too.
- Participants must verify that their idea adheres to all the rules before starting implementation, to avoid disqualification.
- The teams with the most innovative and feasible solution will be declared the winner.
- The decision of the panel of judges shall be final and binding.
- All the teams presenting a completed solution would be awarded certificates for the same.

Cost:

- 750Rs for participation in the workshop.
 - 1950rs per kit: either buy or get online.
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AUTOMATION

Airborne:

Make a remote-controlled hovercraft that can handle 200 gm weight and outrun other opponents on a smooth track ridden with obstacles.

Eligibility:

- Anyone student, irrespective of his/her course or stream, can participate in the event.

Rules:

- Maximum number of team members is 6.
- The vehicle must strictly and purely be a hovercraft, i.e., it should operate by creating a cushion of high-pressure air between the hull of the vessel and the surface below. Any other vehicular design will be rejected.
- The hovercraft must fit inside a cube of side 50 cm.
- The use of IC engines is strictly prohibited. Only electric motors will be allowed.
- Ready-to-Fly (RTF) and Almost-Ready-to-Fly (ARF) kits are strictly prohibited. Glass/carbon fiber sticks, servo-mount, motor-mount can be purchased and used if required.
- Use of ready-made actuators/motors, remote control units, electronic speed controllers and propellers is allowed.
- The hovercraft **MUST** operate using wireless transmission.
- The maximum voltage difference between any two points must not exceed 12V.
- Arena details:
 1. The track will be smooth with sharp turns and obstacles. The hovercraft should be able to cross slopes, hurdles, water and other obstacles on the track. The hovercraft should be able to **cross the various obstacles on the track.**
 2. The width of the track will be 80 cms.
 3. The ramp shall have a slope of 15 degrees.
 4. In addition to the above track, which tests the maneuverability of the hovercraft, there will be an acceleration event in which the hovercraft is required to complete a straight distance of 20m in minimum time.

Judging Criteria:

- The final ranking of the teams will be made on the combined score from the maneuverability track and the acceleration event.
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Robots at War:

Design a remote controlled robot to combat with the opponent's bot. The arena will be a rectangle measuring 24ft x 24ft however the fight zone will be 20ft x 20ft. Pushing the opponent bot out of this fight zone will result in victory. The arena might be on hard and uneven ground and will be enclosed by a 5ft high wire meshes all around.

Rules:

- A team may consist of at most 4 members. Inter - college teams may be formed.

- The machine should fit in a box of dimension 750 mm x 750 mm x 1000 mm (lxbxh) 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 50 kg of weight including the weight of pneumatic source/tank.
- If the tank is external, its weight would be considered 1.5 times its actual weight. Weight of wireless robots and robots having on-board power supply will be counted as 0.6*Actual Weight. Weight of adaptors and the remote controller will not be counted.
- The electric voltage between any two points on the robot should not exceed 36V at any time.
- The machine can be controlled using a wired or wireless device throughout the fight. In case of wireless control, the robot must be installed with a dual frequency radio to prevent interference with the opponent's robot. In case of any interference in the wireless systems, no possibility of rematch exists.
- Readily available remote controlled systems with dual frequency from the markets may be used.
- Before the event, each robot will be inspected by the judges and if the robot is declared as dangerous either to the spectators or the course of the event, it may be disqualified on the spot.
- 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 36 V DC at any point of time. If a team is using AC voltage in any of its parts then the voltage should not exceed 36 V AC at any point of time as well.
- 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.
- Battery Eliminators are allowed and power source would be available at the venue for the Eliminator.
- Special care should be taken to protect the on-board batteries.
- Change of battery will not be allowed during the match. Judge's decision will be final in this case.
- Robot can use pressurized non-inflammable gases to actuate pneumatic devices. Maximum allowed outlet nozzle pressure is 8 bar. The storage tank and pressure regulators used by teams need to be certified and teams using pneumatics are required to produce the Safety and Security letters at the registration Desk at the venue. Failing to do so will lead to direct disqualification.
- 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.
- The maximum pressure in cylinder should not exceed the rated pressure at any point of time.
- 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. Care must be taken while mounting the pressure vessel and armour to ensure that if ruptured it will not escape the robot. The terms 'pressure vessel, bottle, and source tank' are used interchangeably.
- Robot can use non-inflammable liquid to actuate hydraulic devices e.g. cylinders.
- All hydraulic components on-board a robot 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.
- All hydraulic liquids are required to be non-corrosive and your device should be leak proof.
- Maximum allowed pressure is 8 bars. Participant must be able to indicate the used pressure with integrated or temporarily fitted pressure gauge.

- Robots can have any kind of magnetic weapons, cutters, flippers, saws, lifting devices, spinning hammers etc. as weapons with following exceptions and limitations:
 1. Liquid projectiles
 2. Any kind of inflammable liquid
 3. Flame-based weapons
 4. Any kind of explosive or intentionally ignited solid or potentially ignitable solid
 5. Nets, tape, glue, or any other entanglement device
 6. High power magnets or electromagnets
 7. Radio jamming, tazers, tesla coils, or any other high-voltage devices.
 8. Tethered or un-tethered projectiles
- Spinning weapons which do not come in contact with the arena at any point of time are allowed
- In no case should the arena be damaged by any bot.

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 event staff 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.

Judging Criteria:

A robot is declared victorious if its opponent is immobilized. A robot will be declared immobile if it cannot display linear motion of at least one inch in a timed period of 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. In case both the robots remain mobile after the end of the round then the winner will be decided subjectively. A robot that is deemed unsafe by the judges after the match has begun will be disqualified and therefore declared the loser. The match will be immediately halted and the opponent will be awarded a win.

Points will be given on the basis of aggression, damage, control and strategy:

- **Aggression** – Aggression is judged by the frequency, severity, boldness and effectiveness of attacks deliberately initiated by the robot against its opponent. If a robot appears to have accidentally attacked an opponent, that act will not be considered Aggression.
- **Control** – Control means a robot is able to attack an opponent at its weakest point, use its weapons in the most effective way, avoid Arena Hazards, and minimize the damage caused by the opponent or its weapons.
- **Damage** – Through deliberate action, a robot either directly, or indirectly using the Arena Hazards, reduces the functionality, effectiveness or defensibility of an opponent. Damage is not considered relevant if a robot inadvertently harms itself. Also, if a pressure vessel or a rapidly spinning device on a robot fragments, any damage to the opponent will not be considered "deliberate".
- **Strategy** – The robot exhibits a combat plan that exploits the robot's strengths against the weaknesses of its opponent. Strategy is also defined as a robot exhibiting a deliberate defence plan that guards its weaknesses against the strengths of the opponent. Strategy can also involve using the Arena Hazards (if any) to gain an advantage.

Resources:

- http://www.loganbot.com/bot_tips.html
- <http://secretweapon.netfirms.com/howto/howto.htm>
- <http://www.solarnavigator.net/robotbuildingtips.htm> (Read the section on Combat Bot Failures).
- <http://www.robotcombat.com/tips.html>

Frequently Asked Questions:

- Can the fighting parts of the robot be outside the given bot size specifications?
No, the robot should follow the size specifications as given in the rules.
- Can the weight of the robot be a bit more than specified?
No.
- If my robot gets immobilized for some time but works after the judgement, would there be a rematch?
The decision of the judges would be final at the time of the event. In this case, the bot would not be allowed for a rematch.

Circuit Design Challenge:

Based on Analogue and digital electronics and to be designed on a breadboard. You have to design an electronic circuit that meets the requirements of the problem by using the components provided by us.

Rules:

- Teams of not more than three participants only can contest for this event.
- The rounds are open in nature, you will be provided question sheets/components on the registration desk and you need to submit them back within the specified time limit.

- Power supply and other testing devices like multimeter, CRO (if needed) and other tools will be made available in a shared hall.
- You must design the circuit by using the components provided by us. You may not use any other component/material however in case something got damaged you may request the organizer to replace the components/parts.
- Please take note, all necessary inventory will be provided by us. Any additional unnecessary inventory requirements will not be entertained.
- Teams should draw circuit diagram of the application depicting all the principles and theories involved in circuit as well as the working of the Application on a Chart Sheet.
- The decision of the judges will be final and binding.

Judging Criteria:

- Design of circuit
 - Compactness of design
 - Efficiency of the application
 - Desired output
 - Exploration of concepts/theories
 - Breadboarding skills/neatness of the implemented circuit
 - Additional functions/options available in the Applications
 - In case of incomplete solution, it shall be judged on the method of approach and closeness to the real solution.
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Track-O-Mania:

Maze solving line follower - A game where your problem solving skill is tested along with your ability to build a line following bot.

Rules:

1. Robot Specifications:
 - The bot must fit into a cube of 30 cm x 30 cm x 30 cm at all times. It may not expand at any point during its run beyond these dimensions.
 - Robots should not leave behind parts or damage the track in any manner.
 - Teams are allowed to bring only one robot.
 - Only 1 member of the team is allowed to handle the bot.
 - Participants are not allowed to keep anything inside the arena other than the bot.
 - Laptops/personal computers are not allowed near the arena. The bot should not receive any kind of input from outside the arena.
 - The time measured by the organizers will be final and will be used for scoring the teams.
 - No external power supply will be provided. Only batteries are allowed as power source.

- In case of any disputes/discrepancies, the organizers' decision will be final and binding. The
 - organizers hold the right to disqualify any robot found violating any of the rules above.
 - The organizers reserve the rights to change any or all of the above rules as they deem fit.
 - Change in rules, if any will be highlighted on the website and notified to the registered teams.
2. Track Specifications:
- Round 1 & 2: The track will be a white line on a black background. The line will be of 2 cm thickness, with slight variations not exceeding 5% error.
 - Round 2: The track is made of 4 concentric squares. The largest side is of 300 cm and each subsequent one being 16 cm smaller than the previous. All 4 of them are aligned radially with equal spacing. Two consecutive squares are connected by a connecting bridge joining the mid of the corresponding edges. The innermost square will have one pair of opposite midpoints connected by a bridge. There will be no dead ends in the track.
3. General:
- Each team may have a maximum of four members.
 - No individual may be part of more than one team.
 - Judges' decision shall be treated as final.
 - The event organizers reserve the right to make minor modifications to the above rules. The changes will be duly notified. Please check the website frequently for updates.
 - The event will be held outdoors. In case of unfavourable circumstances, the event might be held indoors.
 - In the event of ambiguity, the organizers' interpretation of any clauses of the rules shall prevail.
 - The event consists of two rounds: - Elimination round and the Final round.
 - The elimination round will consist of only plain track.
 - Only the teams qualifying the elimination round will be allowed to participate in the final round.
 - Each team will be given 3 trials out of which the best time will be considered by judges.
 - Nudging/Pushing or any type of manual handling of the robot will lead to cancellation of that run
 - Only two minutes will be given to each team to calibrate their sensors after their first trial.
 - The time is measured using a stop-watch or with the available equipment. In any case the time recorded by the judges will be final.
 - When any robot crosses the start line before the referee's signal, the passage will be interrupted
 - and resumed from the beginning.
 - Any damage to the arena by the robot will lead to its immediate disqualification.
 - The time will start with the foremost point of the robot touching the start line and will end with the rearmost point of the robot touching the finish line.

Contest:

- Round 1: A straightforward track consisting of some "U" turns and right angle turns. Complete the track in the minimum time possible.
- Round 2: Start from the start point and reach the center of the track, keeping track of the path traversed. Detect the tag in the center and glow a RED LED. Traverse back to the starting point via the SHORTEST PATH possible. The time taken to traverse back to the start from the center will account for performance of the bot.
- Refer to sample question for a sample track.

Judging Criteria:

- The time taken for the bot to come back from the center of the track to the starting point will be considered. In case of non-completion, the distance covered by the bot will be considered for scoring.
- The decision of the judges shall be final and binding.

Eligibility:

Any undergraduate student of any discipline is eligible to participate in this event.

I-Strike:

Build a computer controlled robot which can move on a road with the help of overhead camera.

Eligibility:

All students eligible for participation in APOGEE 2016 are eligible for participation in this event. However, each team has to register for the event in advance. No abstracts are to be submitted for the event. Students from different educational institutes are allowed to collaborate to form a team.

Rules:

1. Robot Specifications:
 - The bot must fit into a cube of 20 cm x 20 cm x 20 cm at all times. It may not expand at any point during its run beyond these dimensions.
 - The participants are suggested to paint their bots black in color on top for proper detection and processing.
 - The power supply for the bot should not exceed 24V between any two points in the circuit.
 - The bot must be fully independent, with motoring mechanisms self-contained. However, it can communicate with the computer using either wired or wireless data transfer and can use external power supply. The length of wire will not be included in the size of the bot if it is wired.
 - The robotic equipment is to be fully autonomous. Human operators are not permitted to enter any information into the equipment during a run.
 - The human operator should not directly control the motion of their robots with a joystick or by keyboard commands under any circumstances
 - The bot cannot be built of ready-made toys or Lego kits. But ready-made motor drive circuits, development boards or communication interfaces can be used.
 - Any robot that is deemed by event organizers to be harmful or damaging to either people or the track will be disqualified immediately.
 - In case of any discrepancies/disputes the decision of organizers will be final and binding.
2. Arena Specifications:
 - Round 1: The width of the moving lane would be 30 cm everywhere. The arena is a maze and participants are expected to pave a path from start to finish using image processing. The start point is marked as a red block and finish point as a blue strip adjacent to a green block. The rest arena is a black and white maze, white being the path to traverse on.
 - Round 2: The participants have to move their bot on the path paved by them in round 1. The bot completing the task in the least time without fouls will be declared as the winner.
3. Competition Setup:
 - There would be one overhead camera above the arena perpendicular to the ramp.

- In case of overhead camera, the participants must use the camera provided by the organizers.
 - The details of the camera provided by the organizers will be put up soon.
4. General:
- The organizers' decision will be final on all issues of conflict.
 - The organizers reserve the right to make changes to the rules and the event pattern. Any significant change will be communicated well in advance. The areas of likely change are the judging criteria and the size of the grid in the 2nd round.
 - Maximum team size is 4.
 - A given student can be part of a maximum of 1 team.
 - Pre-Game Setup: The participants will get 20 minutes of setup time for calibration and testing prior to the competition and according to a schedule that will be made available at the start of the event. In the setup time, the participants should have their program ready for execution. During calibration, there can be minor modifications to the code (like fine-tuning filters, etc.) but there can be no changes in the algorithm being used. All changes should be made in the presence of the judges. There can be no more modifications to the code after the calibration.

Contest:

- The competition consists of two rounds. The first round is an elimination round. On the basis of the points obtained in round 1, the top teams advance to round 2.
- Round 1: The image for the final track will be given to the participants and a path from start to finish has to be paved using image processing.
Round 2: The teams has to make their bot traverse on the path paved by them in round 1 in order to reach to the finish point.

Judging Criteria:

- Preference would be given to the bots which complete the entire track.
- If the bot at any time, loses track. It should start from beginning. Each team would be given two chances with a penalty.
- Exact scoring charts (including penalties) will be made available in due course of time and uploaded on the website.
- In case of tie, the bot which completed the track fastest wins.

ECONOMICS

Stock Market Simulation:

The event tries to reproduce some features of a live stock market so that the players get the thrills of investing in a real market without any financial risk.

Eligibility:

- Participants can come in groups of two or individual. The event is open for all students.

Contest:

- **Rounds and Criteria:** Every participant will be given a certain amount of money in INR in the beginning. The objective is to maximize this by smartly investing it in the stocks of various companies in the stock market. The event will have 3 rounds and each round will be independent of each other. There will be no individual winners of the rounds and the final winner will be decided after the commencement of the third round. The participants can choose to convert their currencies but the final amount will be converted to INR. The winner will be decided by the sum of the amount of money and the value of the stocks in INR.
 - **Pre Apogee Elimination (2017 Feb onwards):** This is an online off-campus event that requires the participant to register online for the event and is provided some virtual play money. Top Rankers of the event will be shortlisted and invited to attend the APOGEE 2016 SMS Challenge being organized at Birla Institute of Technology and Science, Pilani. Steps for registering for the online round are as follows:
 - a. Visit DSIG website www.dsig.in
 - b. Log in to Stock Market Challenge Game.
 - c. Click on Settings link.
 - d. Under join contest select contest "Stock Market Simulation" and use Contest Key: ujdKD6X2.
 - e. Click on join contest

NOTE: Participants who are already registered on the DSIG website need to make fresh registrations to play the event on campus.
 - **On Campus APOGEE 2017 SMS Challenge:** This round shall be held on campus. Participants can come in groups of two or individual. They need to register themselves in the registration counters prior to the commencement of the event. The stocks will be influenced by the news clippings and the participants can invest in the stocks after the clipping. There will be a gap of 5 minutes after each video clip. And there will be around 4-5 clippings in each round. The value of the stocks of the listed companies will be shown only after the end of each round and NOT after the end of each clipping.
-

AuctionVille:

Participate in Auctionville by the Economics and Finance Association, where you have to create your own virtual cricket team by placing bids on players in an auction. Test your knowledge of cricket and business sense, and build the strongest team.

Eligibility:

- The game is open to all participants.

Rules:

- Every challenger is assigned £300,000,000 play money in the beginning. The objective is to maximize your team rating by judiciously and smartly investing in the Cricket Transfer Market.
- The selling of players will be in an auction style manner, with the player being sold to the highest bidder.
- Trading players with other teams is allowed after each round.
- The best team of 11 players has to be formed based on certain constraints.

Judging Criteria:

- The team with the maximum team rating is winner of this game.
-

BITS-O-POLY:

Eligibility:

- Participants must come in groups of two. The event is open for all students.

Contest:

1. First round:

- Printed 4*4 matrix will be given. Fill alphabets from A-Z in the boxes. Volunteers will check this before the questions are chosen.
- Scribbling will lead to disqualification.
- We will choose a question randomly. Each question has 3 parts. Suppose Question no F is randomly selected. If you are able to solve the question correctly, then you can strike off the alphabet F from the box.
- In this way, if you are able to make patterns – horizontal, vertical and diagonal.
- If you feel you have made a pattern with all correct answers, you can show the event coordinator. If, in total, you have 6 incorrect answers, you are disqualified.
- If you are disqualified, but still want to play, we will give a new sheet, strike out that particular pattern, and then you can restart playing with the remaining boxes of the matrix.
- The first 6 teams to form a correct pattern will go to the next round.
- Please write the answers on the next page, you will also be given some sheets for rough work.

2. Second round:

- The standard rules of monopoly (UK) will be followed.

Judging Criteria:

- 4 teams from the first round will qualify for the second round and the team with the maximum assets in the second round will be the winner. The second round is not an elimination round and will go on for 60 minutes after which the winner will be declared.
-

Raze and Rise:

Raze your opponents and rise up the ladder to become the ultimate mogul. Attack your opponents safeguard your empire and test your business wits in this nerve-wracking and exciting competition.

Rules:

- Teams of maximum 4 members
-

Contest:

- Round 1:

1. Aptitude based puzzles.
 2. Six teams will qualify to the next round
 - Round 2:
Objective: To maximise your net worth
Scenario:
 1. Each team, considered to be a manufacturing organisation, will be given an initial cash of Rs. 10,00,000. They are free to buy either assets or labour with that amount.
 2. At the beginning of each round, teams will be asked to buy the questions from three pots, arranged and priced according to risk-reward and difficulty. Each correct answer will earn them cash.
 3. During each round, Assets and Labour will generate cash for them given by the production function which includes the values at the end of each round:
$$Y = A \times L / 25,00,000$$

(Teams have to buy a min of Rs. 2,50,000 worth of both assets and labour for the first round)
 4. After each round, teams can sell assets or labour in order to generate or safeguard cash.
 5. Also, teams are allowed to purchase power-ups to destroy the opponent's possessions or safeguard their own possessions.
 6. At the end of five rounds, the team with the highest net worth wins.
 7. Net Worth = Cash + 90% (Assets + Labour)
 8. Note: NO left off powers will be accounted for in the net worth calculation.
-
-

DEVELOP AND DISCOVER

Dexter's Laboratory:

A fun-filled quizzing and laboratory based event of the Apogee which provoke your practical thinking and logical approach to solve the mystery behind Dexter's stolen invention.

Eligibility:

- Open to all.

Rules:

- Teams of two.

Contest:

- Elimination Round: The first round will be elimination based round consisting of basic engineering and science questions. Top 10 teams that perform the best, move on to the second part where they would be asked to solve a few problem statements based on one of the labs (biology, chemistry or chemical engineering), the solutions to which will help the teams crack further rounds.

- Laboratory Round: The second round requires the teams to perform real-time lab experiments to unravel more clues, which, along with those collected previously will help them unravel the mystery behind Dexter's stolen invention.

Judging Criteria:

- The team who finishes first wins.
 - In case of tie, the team with more points in the first round wins.
-

Reverse Engineering:

The competition inherent in the modern market structure forces firms to produce only the best; simultaneously keeping in mind the customer's needs. Reverse Engineering, as many of you might already have heard of involves going back to a concept from the prototype. This technique is often adopted by organizations while developing new products or improving the existing products. It is also used for studying the technology used by competitors and Market leaders of that Industry. In this competition the participant has to prove his understanding of fundamental concepts as an engineer. It requires them to have a systematic approach to analyzing and reasoning the engineering design of devices and systems.

For further details, contact:

Aviral Gupta (+91-9982209905, f2014895@pilani.bits-pilani.ac.in)

Saksham Bhatia(+91-9828617705, f2014759@pilani.bits-pilani.ac.in)

Or drop a mail at manu-assoc@bits-APOGEE.org

Rules:

- A team may consist of maximum 5 members.
- Students from different educational institutions may form a team.
- The organizers will reject incomplete, inconsistent or improper tasks and documents. All entrants are regarded as having the full understanding of the rules and regulations governing the competition. The decision of the jury shall be final and binding. The organizers shall provide various tools required for dismantling the device as well as sheets of paper and other items required for preparing the running note. All disputes are subject to Event Managers' Decision.

Contest:

- Round 1: An online quiz based on aptitude, automobile and basic mechanical knowledge.
- Round 2: Qualified teams will be given an online case study problem. The teams have to mail (or share) their report/solution to us at manu-assoc@bits-APOGEE.org.
- Round 3: The teams will be given a mechanical device (Declared on the spot) which they are required to disassemble to the smallest components, note down the Specifications of each component, complete an Engineering Drawing representing the Electrical Circuitry / Major Structural Components (Whatever is Applicable), and then Re-assemble the component.

Judging Criteria:

- Round 1: Based on online quiz score.

- Round 2: Based on the online case study (open or closed type).
- Round 3: The basic judging principle is – The more the number of components identified along with proper specifications, the more the marks the team is awarded.
- Teams will be provided with the problem statement for Round 3. This will happen on-the-spot. For example, Compressors, 4 Stroke IC Engines were given to study and analyze during previous seasons of APOGEE.
- Aesthetics and neatness of the disassembly and assembly will be considered too.
- For electrical and electronic devices, a proper electrical circuit diagram is required. For mechanical devices, proper diagram of the basic components with dimensions is necessary.
- The team's skills at innovation and understanding of the task at hand will earn more marks.

Resources:

Here are some links to give you a basic idea about reverse engineering.

- <http://www.mechanicalengineeringblog.com/tag/reverse-engineering-in-mechanical-parts/>
- http://www.wepapers.com/Papers/113526/Reverse_Engineering.ppt
- <http://www.npd-solutions.com/reoverview.html>

Astronomy Workshop:

This workshop will give you a hands on session on operating telescopes (specifically an 11 inch Schmidt Cassegrain telescope and a Galilean telescope). It will also teach you about basic to intermediate level of observational astronomy and astrophysics topics – precession, nutation, telescope mechanics, stellar astronomy, exoplanets and dark matter. For the photography enthusiast in you, this will be an opportunity to learn how to click amazing photographs with the help of a DSLR and the telescope.

Eligibility:

- Both BITSians and outstation participants are allowed to participate
- No pre-requisites

Rules:

- Individual participation
- Registration can be done online or on the spot.
- Workshop will be divided in two sessions- observational and theoretical
- Workshop will be free of cost

BUILD AND DESIGN

Water Rocketry:

Water Rocket is a mechanical event that involves the fabrication of a rocket whose fuel/thrust for flight is obtained by the use of water that is expelled at a large air pressure. . The pre requisites for such an event would be a basic knowledge of fabrication, materials and physical calculations involving thrust, air pressure, RANGE AND TIME OF FLIGHT of rocket.

Design a water rocket that is completely powered by the thrust delivered by water expelled at high pressure along with its launch pad.

Eligibility:

- Anyone student, irrespective of his/her course or stream, can participate in the event.

Rules:

- Max 3 participants. These Participants can be from different colleges too.
- The rocket and its components must be handmade. No readymade rocket is allowed.
- The rocket body should be made only with plastic bottles of aerated soft drinks of maximum capacity 2.5L and should be free of any fabrication failures or dents caused by heat exposure. More than one bottle can be used but the total volume must be less than 2.5L.
- Each team **MUST** have their own launch pads.
- The water rocket must use only compressed atmospheric air as its source of energy. Pressure compressors shall be provided at the venue. The pressure inside the container (rocket body) before launch should **NOT** exceed 60 psi for the two rounds.
- Water to be filled in the rockets will be provided by the organizers. Calculations regarding amount of water to be used is left to the choice of the team.
- Two trials will be given to each team and best of two will be taken into consideration.
- The rocket must be launched from a stationary position using a fixed launch pad. Slingshots, trebuchets, catapults, cannons, and all other devices that may assist launching are strictly prohibited. In other words, the internal pressure of the rocket must be the only source of energy for the rocket.
- Water rockets can have multiple stages. Parachute, gliding mechanisms are permitted.
- Use of electronic components and chemical explosives are banned.
- The point where the rocket hits the ground first will be taken as the point of landing and measurements will be taken considering this point.
- Teams are advised to get more than one water rocket, in case of any damage to one. But the water rockets must be identical.
- The participants are allowed to use variations of their water rockets in different rounds. However, only one design must be maintained throughout a single round.
- The team will be disqualified/given another chance to remodel if the model is found to be dangerous in anyway.
- Decision of the organizers is final and binding.

Judging Criteria:

- **First round: Range test**
Here the maximum range is tested. The distance between the launch pad and the point of

landing is measured and taken to be the points in that round. From this, 10 teams will be shortlisted for the next round.

- **Second round: Accuracy test**

At a distance of 70m from the launch pad, a target is placed. Target contains concentric circles of radii 2m, 4m and 6m. If the rocket lands at the centre, team gets 100 points, second ring 75 points, and outer ring 50 points. If otherwise, no points are awarded. Three teams will qualify for the final round. In the case of any tie, the time of flight will be noted and the team with the least time gets into the next round.

The organizers will decide to permit the launching of the rocket after inspection of both the rocket and launch pad considering factors such as safety and permissible mechanisms mentioned in the rules. In such cases, the organizers' decision is final and binding.

Resources:

- http://www.aircommandrockets.com/flying_higher.htm
 - <http://www.sciencetoymaker.org/waterRocket/buildWaterRocketLauncher.htm>
 - https://www.youtube.com/watch?v=1t663D_gErg
 - http://www.waterrocketmanual.com/how_they_work.htm
 - <http://www.txsnapper.eezway.org/txsnapper/tips.html>
 - http://www.npl.co.uk/upload/pdf/wr_booklet_print.pdf
-

Smart City Planning:

A design based event to flaunt your architectural skills as well as your business mind. This event challenges you to build your own Smart City based on given specifications and then sell it in 5-minute pitch to the judging committee. Here, each team represents a construction company and whichever team wins the tender will be the winner of the competition.

A challenging **Problem statement** is waiting for you which will be presented **On the Spot**. All you need to do is TO splurge your innovative ideas to build something great!

Eligibility:

- Open to enthusiasts from all the Discipline

Rules:

- Teams of 2-3 members.
- All necessary material for the event will be provided during the event.

Judging Criteria:

1. Round 1: Time duration of 1hr 45 minutes will be provided to make your own design on a chart paper for given specifications. Teams which are unable to complete their design or violate the specification will be eliminated in Round 1
2. Round 2: In this round, you have to convince the judging committee in a 5-minute pitch for your tender. They will judge your design on the grounds of:
 - Feasibility
 - Aesthetics
 - Innovation & Smart moves in design

- Sustainability
 - How effectively you know your design and express it in Pitch?
-

OlymPHYs:

An activity event. We will provide them all the required materials for making the model for performing the particular activity which is given them as task. There will be time limit for performing the particular task. And also there can be multiple ways to perform that activity but most efficient and the less consuming method will be given the preference. And will get more points and in the end team with more score wins the game.

Eligibility:

- On spot Registration
 - Come in teams of two.
-

Krazy Bridge:

This event will test your skills to approach the problem in an innovative manner. With just scrap, you are expected to build a bridge that can bear maximum load and undergoes minimum deflection. You have the freedom on the type of bridge you construct.

Eligibility:

- Open to All.

Rules:

- Each Team has to make a Bridge using following items satisfying the given specifications.
 1. Thermocol,
 2. Cardboard,
 3. Ice cream sticks,
 4. Newspaper, etc.
- Bridge Specifications:
 1. Physical Specifications of the bridge are:
 - i. Height of deck ≥ 10 cm.
 - ii. Span of bridge ≥ 40 cm
 - iii. Pier spacing ≥ 10 cm
 - iv. Width of deck ≥ 8 cm
 2. The bridge should be made keeping in mind the aesthetics, feasibility and most importantly the load it can bear.
 3. Keep in mind that we will only test the weakest point of the bridge. So try to make the bridge with uniform strength throughout its span.
 4. The bridge must have a level, seamlessly constructed roadway. The deck will be subjected to Concentrated / movable loads along the deck of the bridge
- All the material required will be provided.

- Teams must be of a maximum of 4 members.

Judging Criteria:

- The strength of the bridge. It is governed by the maximum load it can bear.
 - Aesthetic Sense
 - Efficiency
-

Hackatron:

Rules:

- 2 participants per team

Contest: Two rounds

- First round will check basic electronics components and concepts knowledge . Questions may test participants real time application knowledge.
- Second round :- A problem statement would be given on the spot and the top 5 teams should solve the statement from the given components
- Please take note, all necessary inventory will be provided by us. Any additional unnecessary inventory requirements will not be entertained.
-

Judging Criteria:-

The selection of the winners shall be done by the APOGEE Judges Panel consisting of faculty from the Electronics and Electrical, and Electronics and Instrumentation department. The names of judges shall not be revealed to any participating student and any attempt to approach probable judges shall be deemed unfair. Following are the points for evaluations.

- Compactness of design
 - Efficiency of the application
 - Desired output
 - Exploration of concepts/theories
 - In case of incomplete solution, it shall be judged on the method of approach and closeness to the real solution
-

BOB THE BUILDER:

Eligibility:

- Open to all
- On the spot. Participation in the teams of 3-4

Rules:

- A pile of junk, knowledge of basic laws of Science and a pinch of creativity. Creative activities club brings to all a contraption making competition.
- All the inventory will be provided on the spot along with a problem statement.

Judging criteria:

- Number of steps
 - Number of energy conversions
 - Complexity
 - Robustness
 - Creativity
 - Successful completion
-

Innover:

_"With great power comes great responsibility".

A product design and development event that centers on the re-invention and sales and marketing strategy to replace an already existing product. Teams are given the choice of two problem statements and can choose to work on any one of the two problem statements given below.

Teams must design their product incorporating all the innovations they can think of and are responsible for its marketing, i.e. you will be required to design its marketing strategy for the AAM-JANTA.

Rules:

- A team may consist of maximum 4 members.
- Students from different educational institutions may form a team.

Problem Statement:**1. Last mile transportation solution:**

Participants are invited to come up with innovative ideas for cost efficient and robust transport design. For exact definition of Last mile transportation refer the information given in the link.

[https://en.wikipedia.org/wiki/Last_mile_\(transportation\)](https://en.wikipedia.org/wiki/Last_mile_(transportation))

The design should tackle the points as given:

- Anti-Theft
- Safety and Comfort
- Modularity
- Energy Efficiency
- Robustness

Extra points will be given for any other innovation incorporated in the design.

2. Smart lighting systems:

Participants are invited to come up with innovative ideas for energy efficient and aesthetic lighting systems.

The design should tackle the points as given:

- Energy Efficiency
- Cost Efficiency
- Aesthetics

- Degree of Automation.

Extra points will be given for any other innovation incorporated in the design.

Contest:

- Round 1: Teams will be required to send us an abstract* which should have the various innovative ideas and features for the Last mile transportation solution or Smart lighting systems.
- Round 2: The selected teams will be required to send us the Sketch/CAD of their design along with a paper describing their design in the prescribed format.
- Round 3: The Final teams will present their Design in the form of PowerPoint presentation during APOGEE 2016.

*The Abstract should include a short write-up of around 350-450 words and Keywords. Also, include the details of team members.

The Abstract, Paper and the Design CAD/Sketch should be mailed to us at manu-assoc@bitsAPOGEE.org on/before the last day of submission.

Both rounds 1 and 2 will be conducted before APOGEE and the deadlines will be announced on the official website.

Judging Criteria:

- Round 1: The abstract will be evaluated on the basis of the points mentioned in the problem statement.
- Round 2: The Sketch/CAD along with the paper will be judged by our expert.
- Round 3: Final PowerPoint Presentation during APOGEE.

Teams will be judged based on the features included, their functionality, practicality and feasibility.

All the rounds will be judged by our Product Design and Development expert.

Chem-E-Car:

The participants are required to build a car with the help of given materials. Then fuel the car with any combination of given chemicals and race against time.

No preparation required; just come, participate and gain the experience of a lifetime.

Eligibility:

- Open to all

Rules:

- Teams of 2-3.

Judging Criteria:

- The distance will be measured with respect to the front end of the car whether the car goes over the finish line or not.
- Score obtained is a combination of the distance the model car covers, the time it takes and the design (taking into consideration the theme).

Battle Of Waterloo:

Ever wanted to feel the power of the driving force of the racing Power boats? Come and build your own Speed boat at Battle of waterloo. Apogee 2016 gives you an opportunity to build your own RC motor boat and prove your mettle against other racers.

Build a wireless remote controlled BOAT which travels a specified race track in the least possible time.

Eligibility:

Participant must be a full time student enrolled in undergraduate or post graduate programme from any recognized university or college. Any professional body other than student are not allowed in this event.

Rules:

1. Boat Specifications:

1. Maximum dimensions of the BOAT at any point of time during the race

- Length: 80 cm
- Breadth: 35 cm
- There is no constraint on the height.

(Note: The above mentioned dimensions includes the rudder and propeller of the BOAT)

2. BOAT can be powered either by an IC engine or a DC electric motor. Use of any other kind of power source is strictly prohibited. BOAT must have only one of these power source for propulsion

3. If powered by an IC engine, the capacity (displacement volume) should not be more than 3.2cc.

4. If powered by electric motors, the potential difference across the motor terminals should not be more than 12volts DC.

5. In addition to the power sources for propulsion you may use dc motors or servo motors for rudder controller.

2. Fabrication

- You have to fabricate the hull and rudder mechanism yourself. It is advisable to use light weight materials for making the hull (E g. balsa wood, FRP, plastics etc)
- If any ready-made components are found as a part of the hull, the team will be disqualified.
- Propeller, rudder fins, remote control, servo motors and electronic circuits can be taken directly from other models.
- Electronic circuits and servo motors/ ic engine should be laminated properly so as to keep them off from damage by water.

The BOAT will be inspected by immersing in water before each round and if found unsafe or potentially contaminating the water, it will be immediately disqualified from the race.

3. Race rules:

ROUND 1: 1. Best of two trials will be considered (least time taken to reach the finish line) for the teams to qualify for the second round. 2. The track will be free from obstacles. 3. The exact number of teams qualifying for the second round will be decided based on the number of participants. 4. If Participants are using an IC engine, they can start the engine and the BOAT will be placed in the water and released it when the signal is given. 5. There will be penalty for

touching the boundary.

ROUND 2: 1. Teams qualifying round 1 will participate in this round. 2. Round 2 is meant to test the speed, steering skills of the boat through various obstacles on the track. Details of the track will be uploaded later.

4. Race Track: Race track details will be uploaded later but will essentially contain a loop/ turn The event will be conducted in BITS Pool having dimensions 25m*10m*2m.
 5. Team:
 1. Each team can have a maximum of 4 members.
 2. A participant cannot be a member of more than one team participating in this event.
 6. The BOAT must be manoeuvred by a wireless remote control, if any controls are used.
 7. Participants are advised to design the BOAT to prevent any damage that could be caused to your BOAT when it hits the boundaries of the track.
 8. If you have any doubts regarding the BOAT specifications or rules or if your BOAT uses different components or concepts, which the problem statement does not specify, please contact the organizers to confirm the validity of the same. Do not assume anything yourself.
 9. Judges decision shall be final and binding to the participants at the any point of time.
 10. The organizers reserve the right to change a part or whole of the specifications and rules mentioned above. Changes, if any, will be updated in the website.
-

FTGP- Full Throttle Grand Prix:

Sports Cars are one of the most ultimate man-made machines and their race is full of adventures and a must watch event. On the course of F1 racing BITS-Pilani is conducting Remote Controlled racing event "The Full Throttle Grand Prix". This competition is to show your knowledge about engineering behind remote controlled cars and feel the effect of ultimate driving experience. The event requires racing of your self-built RC cars on a race track. Although it may look simple to you but you will face cut-throat competition, and finally it is the quality of the car and driver ability which will decide the winner.

Eligibility:

Participant must be a full time student enrolled in undergraduate or post graduate programme from any recognized university or college. Involvement of any professional body other than the students is not allowed in this competition

Problem statement:

Build a Remote Controlled IC engine powered car to traverse a race track in the minimum possible time. The time trial track may be composed of several turns with increasing difficulty levels. The teams with the top best time to lap this track qualify for racing. Final round will be a race.

Registration: Participants have to submit an abstract giving the complete description of their vehicles based on the following lines.

- If the teams are fabricating the vehicle by themselves then steering mechanism and the chassis layout should be explained in detail, along with proper diagrams. Picture(s) showing all the three should be attached.
- Photographs of chassis without assembly should also be submitted. If the participants have already proceeded building their chassis, then they can send the photo of their car in the current state. These photographs are required to verify that the components have been built by the participants

themselves.

- Photograph of the car in the current state must also be sent with the name of the photograph as the date on which it is taken.
- Specification of all other components like the engine, remote controllers etc must be specified.
- The complete abstract along with the photos and the team name and members name.
- If readymade cars are used by the team then the team should mail the exact specification of the car.
- Write the name of team along with the name of team leader and team members with contact numbers and e-mail ids. Put the <team name>_<College>_FTGP in the subject and mail your abstract to mechassoc@bits-apogee.org .
- A confirmation mail will be sent to the Team leaders.

Rules:

- Vehicle Specifications :
 - i. The vehicle should fit in a box of dimensions 800mm X 700mm X 600mm at every given point of time in the race. The external device used to control the vehicle is not included in the size constraint.
 - ii. The use of IC Engines for propulsion is essential. Motors should not be used for this purpose. However DC motors and servos can be used for steering mechanisms or any other mechanism apart from propulsion.
 - iii. Only one IC engine should be used in the vehicle. Use of any other sources such as chemicals, compressed gas, rockets etc for propulsion is not allowed. The maximum allowed capacity of IC engine to be used is 4.5 cc (i.e. Participants can also use 4.2cc, 3.5cc, 2.5cc, or any other IC engine with less power).
 - iv. The vehicle has to be necessarily controlled by a wireless remote control system throughout the competition. The vehicle must have two remote control of different frequencies or an alternate frequency remote control circuit which can be switched to either frequency before the start of the game. This is done to avoid frequency interference between the two competing vehicles.
 - v. Remote control systems from toys might be used. Remote control systems available in the market may also be used.
 - vi. The vehicle parts can be ready made. But there will be extra points if you make chassis and steering mechanism by yourself (See judging criteria for more detail).
 - vii. If you are making your car then other functional parts like motors and servos, gears, springs, engine, remote control systems, batteries, wheels, braking mechanism are allowed to be used as directly available from the market.
 - viii. The vehicle must have an onboard power supply to provide electricity to any mechanism requiring electric power.
 - ix. The electric voltage anywhere in the machine should not be more than 12V at any point of time.
 - x. Participants are advised to use a proper cooling mechanism to prevent overheating of the engine.
 - xi. Verify with the organizers if you have the slightest doubt whether a component can be used or not.
- The minimum width of the track will be 1.5m.
- The track will have check points at regular intervals.
- If a machine tumbles, or halts, or goes off the arena at any point on the track, only one of the

participants is allowed to lift it up and place it at the nearest checkpoint behind that point. (Rule No (ii) & (iii) are for non-racing rounds. The rules for racing round will be told on the spot)

- The vehicles have to be fully controlled using only the remote control unless there is a need to touch the vehicle as stated above. There will be a time penalty every time the machine requires lifting by the team member.
- Any vehicle is not allowed to leave any disintegrated part on the race track amidst of the race. In case this happens, the team will be disqualified.
- The teams are also not allowed to damage the opponent's vehicle deliberately. If found guilty, the accused team will be disqualified.
- Teams may consist of a maximum of 5 members.
- Depending on the number of teams participating and other time constraints, the arena will be given to the participants for practicing. The time slots will be given on the basis of first come first serve basis, but little duration for practising is assured to everyone.
- All the teams must have a team name.
- Organizers reserve the right to change any of the above rules. The participants will be informed about the same through the highlighted text on APOGEE website.
- Participants can address their queries indirectly via e-mail or forum and directly by calling up the organizers.
- Some online resources for help will be uploaded soon.
- Organizers and judges' decision shall be considered as final and binding on all.
- Arena specification: TO BE UPLOADED SOON.

Judging criteria:

- The judging is divided in two parts: (a) Design Event (25%) (b) Racing Event (75%)
 - In the design event, a panel of judges will be judging the vehicle on the designing part. However, this is applicable to only those teams who have themselves designed and fabricated the steering system and chassis of the vehicle. Teams bringing the readymade cars will have their evaluation in 75% of total marks i.e. the team loses 25% marks straightaway.
 - In the racing event, the control of the vehicle and the driving skill of the participant will be the judging parameter. The track will consist of sharp turns and a little elevation also.
 - Lap time will be another criterion to decide the winner.
-

Junkyard Wars:

It is a complete day and night event wherein the participants are required to make a vehicle from the junk provided to them in 36 hours in the final round. For this purpose, the BITS Workshop will be kept open during the complete event and participants can make use of the required machine tools. The teams will be selected for the final round from two initial rounds.

Eligibility:

- There are no pre-requisites for this event. Anyone can form a team and take part in it.

Rules:

- The first round will be an MCQ type. The questions will be based on basic engineering concepts and will also be related to automobiles in particular.

- The second round will be a more of an imaginative and open end type where the shortlisted teams will be required to present a solution to the given problem statement. The problem would be based on a hypothetical situation and the participants are required to showcase their know-how in the current technology as well as their thinking ability to depict a solution to the given problem.

Judging Criteria:

The final vehicle will be judged on the following basis:

- Its ability to work properly.
- Manufacturing of the required mechanism as per the problem statement.
- Ability to finish the final task required to be done by all the teams.
- Rules will be specifically explained at the time of event and the above order does not signify any particular weightage to the points mentioned.

Up in the Air:

Rules:

- The aircraft must fit a box of **dimensions: 40" * 40" * 15"** at all points of time during the competition. The aircraft must **necessarily be fixed wing. Helicopter designs or designs involving variable propeller positions** like the Bell-Boeing Osprey are **strictly prohibited**. The aircraft should preferably be a low wing monoplane, for performance considerations. Usage of biplane designs is **not** prohibited.
- There is **NO** restriction on the weight of the aircraft.
- The aircraft must be powered by a **single forward mounted electric motor** with an electronic speed control unit. The use of Lithium Polymer batteries is suggested. Use of IC engine for propelling is strictly prohibited.
- The radio control system must **at-least have 4 channels** to control yaw, pitch, roll and throttle. The radio control system should preferably be from a reputed brand like Futaba, Hitec, and Tower Hobbies etc. for the safety considerations of the spectators and the participants themselves.
- The participants may choose to use additional channels for better control or for incorporating novelties like retractable landing gears. This however, is not necessary and will not be awarded any additional credit.
- The participants are free to use propellers having as many blades as they desire. The **use of push-propellers**, however, is **not allowed**.
- The Participants are **not allowed** to use **ARF (Almost Ready to Fly)** or **RTF (Ready to Fly)** aircraft. However, kits with plans and pre-cut balsa parts are allowed, as building skills are necessary for making these aircraft.
- **Potential difference** between any two points **can't exceed 12 Volts** at any point of time during the competition.
- The participants must report to the **SAE stall half an hour before** the **event slot** for both elimination and finals and **submit** their **transmitters**. The actual event will be held in **Medical Centre grounds**. Participants will be **allowed to modify** their **aircraft** till their **turn arrives**. Before the actual flight, participants will be **allowed to prep** their aircraft for **10 minutes**. Once on the runway, the participants might **prep** their aircraft for **3 minutes** and **declare** their readiness **before taking off**. Turns will be **decided** by **lots** for **eliminations** and **randomly** by the **organizers** for the **finals**.
- It is the **participant's duty** to look at a copy of the **judge sheet** and **rule book** provided, **before attempting the run**. **No grievances** will be **entertained** later.

- In all cases, the decision of the **organizers** and/or the **judges** is **final and binding**.

Contest: There will be 2 rounds in all.

A. Round 1:

- This will be an elimination round.
- All teams will be given **2 heats** to fly their aircrafts over a prescribed area as shown in fig.1
- Total flight time, from leaving the ground to landing back will be noted. For each second of flying time, **2 points** will be awarded to the team. This will be done for all the 3 heats. The best among the 3 will be taken for evaluation against other team' timings.
- For each second of flying out of the arena, **-1.5 points** will be awarded. No warning will be given by the linesmen for going out of the arena.
- There are bonus points for taking off from the ground and safe landing back.
- For taking off, **a bonus of 50 points** will be awarded.
- For safe landing back, **a bonus of 50 points** will be awarded.
- No extra points will be awarded for teams choosing to hand-launch their aircrafts.
- The decision of whether an aircraft has safely landed back or not, solely rests on the organizers.
- The team scoring **minimum number of points will be eliminated** from the competition.
- There is not restriction on the amount of time a team decides to fly their aircrafts. It is upto the team to decide when to land back.
- There will not be any points awarded for performing aerobatics.

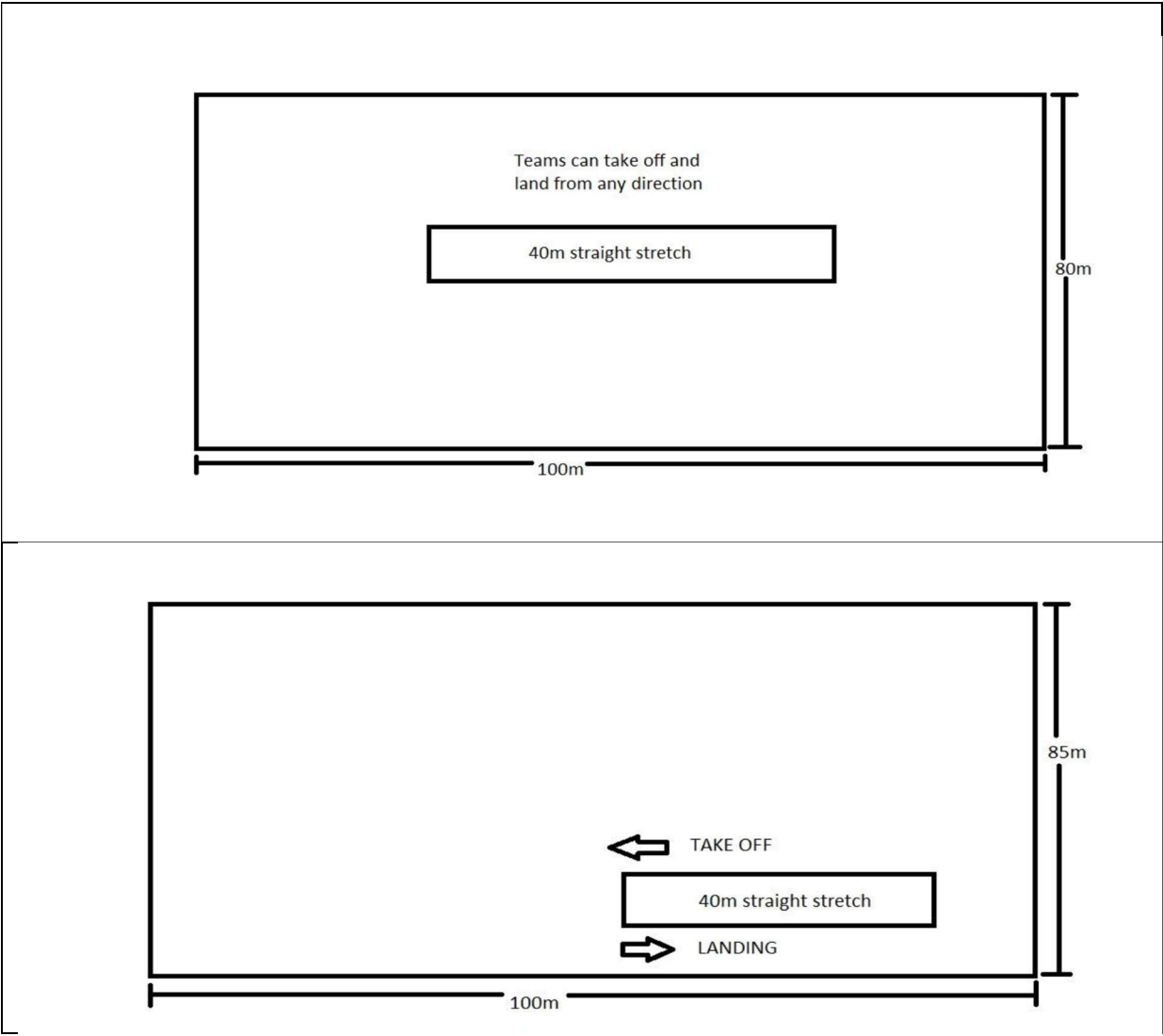
B. Round 2:

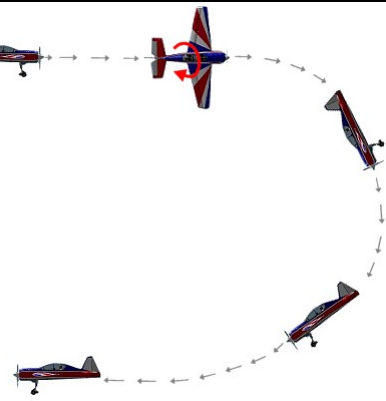
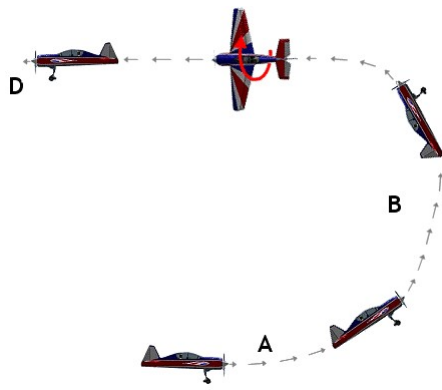
- This round requires teams to perform aerobatics in the zone prescribed by fig. 2
- Standard aerobatic maneuvers and their scoring is as follows:
 1. Inversion and Knife Edge- **50 points**
 2. Barrel Roll- **30 points**
 3. Stall Turn-**70 points**
 4. Immelman – **70 points**
 5. Split S Turns – **70 points**
 6. Aerobatic Loop- **30 points**
- A team performing no aerobatic tricks and choosing only to fly regularly will be awarded **40 points for a flight time of 150 seconds or more**.
- For this round, teams must take off and land back after completing aerobatics. **-10 points** will be awarded to teams failing to land back safely. No negative points will be awarded for hand- launching , but **+5 points** will be awarded for taking off from the ground
- Teams can cross the prescribed area (fig 2.) a maximum of 2 times. Both times, they will be given warnings by the linesmen. On further crossing the boundary line, a 3 point penalty for each second out of the flying zone will be awarded.
- Once again, there is not restriction on the flying time and the kind of tricks. Though the scoring has been mentioned for common tricks performed in aerial aerobatics, tricks like torque roll etc, are encouraged. These will attract additional points as deemed fit by the organizers.

Judging Criteria:

- The **cumulative score** of the first and second rounds will be taken in the final scoring.
- The team accruing the highest score will be the winner.

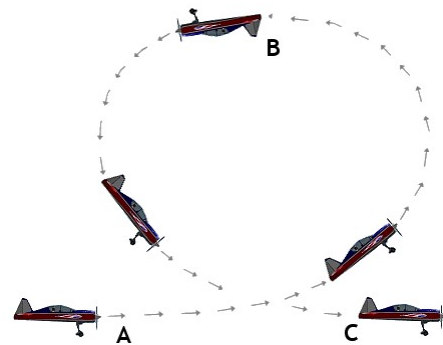
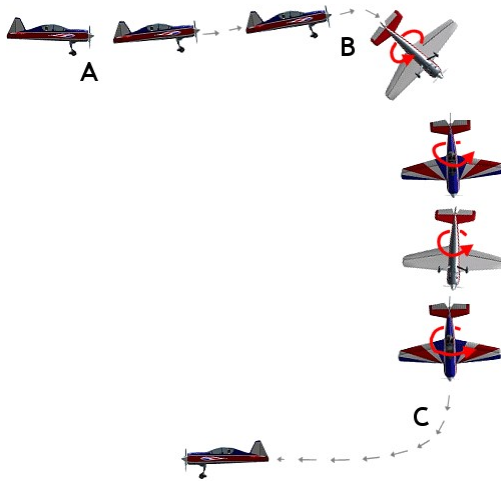
Relevant Figures:





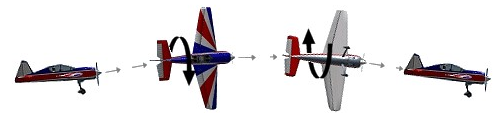
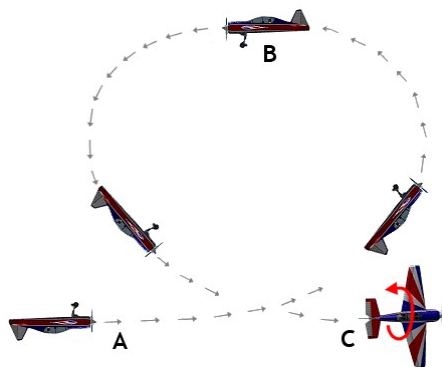
Immelmann

Split S



Spin

Loop



Outside loop

Roll

MISCELLANEOUS

Armageddon:

An annual LAN Gaming event held during Apogee to showcase the prowess of gamers all over India. With over 350+ participants, lots of exciting goodies and prizes to be won in games like **CS:GO**, **Dota 2**, **Fifa 17**, **CS 1.6** and **Blur**. Get ready to witness the ultimate battle for glory!!!

Contests:

Dota 2:

- Captains Mode.
- Teams of 5.
- Qualifiers : Best of 1 Elimination Rounds
- Semifinals & Finals : Best of 3

CS:GO :

- Teams of 5.
- Competitive mode with map pool of 7 maps namely Dust2, Mirage, Cache, Inferno, Train, Overpass & Cobblestone will be played.
- Maps will be chosen on veto process after knife round.
- Similarly, sides will also be chosen on the basis of knife round.
- The match will be hosted in regulations with ESL5on5 config.
- On draw, overtime will be played to decide the winner.
- Qualifiers : Best of 1 elimination
- Semifinals & Finals : Best of 3

CS 1.6 :

- Teams of 5.
 - Clan match config. with map pool of 4 maps namely Dust2, Inferno, Nuke & Train only will be played. On draw, overtime will be played to decide the winner.
 - The match will be hosted in refutations with professional CS 1.6 Clan match config.
 - Qualifiers : Best of 1 elimination
 - Semifinals & Finals : Best of 3
-

Whodunit:

The objective of the teams would be to solve a puzzle over a set of two rounds.

Rules:

- A maximum of three members per team.
- Participants must wear shoes to the lab.

Contest:

- The first round itself is split into multiple parts, the first being a written quiz based elimination round consisting of simple aptitude based questions. The top 6 teams move on to the second part where they would be asked to solve the murder mystery by using the various clues that they will be provided (dairies, character sketches, post-mortem report, telephone records, etc.), the solutions to which will help the teams crack the whole problem.
- The second round also requires the teams to perform real-time lab experiments to unravel more clues, which, along with those collected previously will lead them to the solution to the puzzle.

Judging Criteria:

- Teams will be shortlisted based on their performance/score in each round.

Photo Treasure Hunt:

A unique treasure hunt giving you an opportunity to showcase your knowledge of the campus and photography skills as well. Photos of locations around the campus would be clues leading to the treasure. The photos would be mysterious and creative. Reproduce similar photos in the exact location to get the next clue. The first team capturing all locations around the campus in the exact manner would be the winner.

Rules:

- On spot registration
- Maximum team size- 6

Polysis:

Whether studying in a college, walking down a road or defending yourself in the court, we are always surrounded by policies. "The state", as is said, "is always interested in you, even if you are not interested in the state". But who should one blame when the policies don't deliver to their ideals?

Contest: The event will have 2 rounds-

- Elimination Round:
 - In *teams of 2-4*, participants are required to mail a short abstract (300-400 Words) to publicpolicybitspilani@gmail.com
 - The abstract has to be an answer to any **one** of the following 4 Problem Statements:

1. The Income Tax Dilemma:

How Many People in India Pay Income Tax?

Hardly Anyone

A meagre 2% of the total population pays income tax in India. The revenue generated from Income Tax today is nowhere near to the total revenue obtained from various taxes (Service tax, VAT, entertainment tax, custom duty etc.) by our government.

It has been reported that roughly 3/4th of the total Income Tax payers are servicemen who are obliged to pay taxes-income tax is directly deducted from their source of income. This leaves us with all the unsalaried people, who in total form just 1/4th of the total income tax payers. Considering the demographics of India, this is a ridiculous figure. Certain figures state that a meagre 20 Lakh out of the 3.6 million unsalaried people in India are paying taxes.

But despite its shortcomings, ITR remains the only source of knowledge about the financial operations and assets of non-governmental employees, however vague it might be.

The above scenario has compelled many to reconsider the purview of the Income Tax regime. What steps could be taken in such a scenario? Can the Income Tax system be made more efficient? Can it be replaced?

2. One in every three child in India is malnourished and unkempt, a figure that is greater than that in the Sub-Saharan desert. The condition of children in our country is nothing like what our constitution envisages.

On 15th August 1995, the then UPA government came up with the flagship Nutritional Support to Primary Education (NP-NSPE), popularly known as the *Mid-day* meal scheme, to abate this problem. Since then, the 12PM meals in government schools have fed millions of school-going children and have increased the school enrollment. But its implementation has not been as desired and malnutrition among children is still a lurking problem.

Then there is the ugly side of things. On July 2013, 23 children from Bihar died as a result of toxic food preparation. 12 students in the Buxar district, 33 students in Vaishali and 64 students in Lucknow suffered from food poisoning all during the same month.

Then there have been delayed payments to the cook, snakes and worms found in food, deplorable food quality and reports of food being wasted and stocks getting 'disappeared'. Embezzlement of the money by way of fake enrollment has also been reported.

The benign intentions of Mid-Day meal have been over-shadowed by its poor implementation. If you were a policy maker, what changes in this policy and its implementation would you suggest to reduce some of these problems?

3. In several of his public appearances, Prime Minister Narendra Modi has pitched for ***simultaneous elections*** for Lok Sabha and state assemblies. It is not an entirely new concept for India- Simultaneous Elections were held for Lok Sabha and state assemblies from 1952 to 1967.

There are some obvious advantages of this- huge savings, avoiding repeated enforcements of the Model Code of Conduct and avoiding electoral paralysis (an example of which occurred during the UPA tenure when the monthly diesel price hikes were repeatedly put on hold due to an election taking place in one state or the other.)

But when we dig deeply into the issue, some problems begin to surface. While problems like requirement of large-scale purchase of Electronic Voting Machines (EVMs), Voter Verifiable Paper Audit Trail (VVPAT) machines and enormous human resource from ground workers to armed personnel might be tackled, there are some unsolvable issues.

Simultaneous elections can work only if each and every government lasts five years regardless of confidence. So, if a state government does lose the vote of trust, what happens to the tenure of the new government? What happens to the disrupted cycle? Also if simultaneous elections are held, then for the first time what happens to Assemblies whose scheduled tenure either ends before or after the proposed date of holding elections? What would happen in case by-elections are necessitated in between terms? What happens in case the ruling party or coalition loses majority in between term, either in the Lok Sabha or in Assemblies?

When the Prime Minister of a country pitches for such a policy, it sure holds importance. As a policy-maker, what decisions would you take to tackle one or more of these problems?

4. India- the largest democracy in the world- is surrounded by scores of public policies. When a policy is not implemented properly, the problem sometimes lies in its improper implementation, but sometimes the problem is in the policy itself. It

could have been because the policy makers didn't consider all the highly complex parameters involved, or simply because the policy is outdated. There could be many other reasons. Choose any one such policy and suggest improvements in it to eradicate the problems or make it better. Just remember-**choose a well-established policy within India that has been passed and approved by the respective legislature.** Don't take issues- like Jallikattu. Take policies and acts- Like Prevention of Cruelty to Animals Act 1960. Take cues from above problem statements for a better idea.

- **Final Round:**

- Based upon the entries from the above round, selected teams would qualify for Round 2 on campus. These teams would be given a topic a week in advance. The teams would be required to put forward their views on the subject matter. The teams can use a presentation, a video or anything else for their aid, *as long as plagiarism is avoided*. This includes answering cross-questions from anyone present. Judges will decide the winner.

Judging Criteria:

- One policy for each team, each team will have 6-8 minutes for presenting their solution, followed by a question-answer round. Marks will be given for content and analysis, not on polished language, although good presentation skills are obviously cherry on the cake. Judges will decide the winners.

Deadlines:

- The deadline for Round 1 is 5th March, 2017. Further deadlines would be duly conveyed to the participants
-

Join & Win:

As is the case that "the one who deserve is the one who observe" the same goes with our event Join & Win, where you spectate all around to win here.

The keen observants of the events throughout the day get a chance to answer various questions and puzzles based on the events held on that day and answering and gaining maximum points makes you the winner.

Eligibility:

- This event is open to all.
- Players will have to register on the portal itself.

Rules:

- Players will have to answer questions based on the events that were organized on that particular day.
- This is an individual event
- The portal opens for 3 hours daily between 21:00 to 21:59
- Each correct response carries 4 points
- 1 mark will be deducted for an incorrect response.
- For every player, score tab will be reset to zero points after each day.
- In any case of any conflict the final decision will be of the event coordinator.

Judging Criteria:

- The player with the maximum points at the end of each day's play shall be declared winner.
-

House of Cards:

CEA brings you a fun based event in which you are expected to build a structure out of playing cards. All you need is to imprint your creativity and innovation in the structure.

Eligibility:

- Open to all.

Rules:

- All the material required will be provided at the event spot.
- Teams can be of a maximum of 4 members.
- You can fold your cards and also cut into pieces.
- Physical Specification of the structure is :- Height of structure or hat ≥ 10 cm.
- If you have placed something just above your structure just to increase the height that will not be evaluated.

Contest: There are two parts of this event.

- **Part-1:** In this part, the team have to build a **hat** out of the cards provided.
- **Part-2:** In this part, the team have to build any structure of their own imagination. It is suggested to keep sufficient cards for part-2 as extra cards will not be provided.

Judging Criteria:

The structures are evaluated based on the

- Innovation of the structure
 - Aesthetic sense
-

Goodbye Earth:

Eligibility:

- All college students are eligible.

Contest:

It's the year 2050. Humans have left Planet Earth and are trying to build a colony on Mars. Your team is in-charge of this settlement and thus you have to take care of various aspects of this new colony. There will be three rounds in the event which will be declared then and there. Round will test your

creative abilities and scientific aptitude. A cumulative score of the participants will be calculated based on their points in each round.

Rules:

- Online as well as On-spot registrations
 - Maximum team size is 5.
 - All the inventories required will be provided at the time of the event.
 - At the end of the time duration, the participants must explain the work to the judges.
 - Judgement will be based on creativity, aptitude and logical reasoning of the participating team.
 - In case of discrepancy, verdict of the organizers is final and binding.
-

ESPOIR:

Espoir 2017 seeks advanced healthcare solutions and ideas to address the appalling state of health in our country. We strive for a nation where Quality Healthcare Services are accessible and affordable. Espoir 2017 is an effort inviting innovations and solutions to that effect via a business plan competition culminating at APOGEE 2017, Annual Technical Festival, BITS Pilani. Espoir 2017 is one of the first Business Plan competitions to be organized in the Health Sector in India. The bright elucidations put forth through this venture by ignited minds would surely help solve health problems of our nation and bestow upon us a joyous future.

It is rightly said “There is no medicine like hope, no incentive so great, and no tonic so powerful as expectation of something better tomorrow.”

Be a part of Espoir. Be a part of Hope...

Eligibility:

- All students pursuing any graduate or postgraduate degree courses in any college specifically management colleges within India. All participants must possess a valid ID card issued by their respective institute and should be able to produce it whenever asked to do so.

Problem Statement:

- **Malnutrition:** Half the children in India are underweight, one of the highest rates in the world and nearly the same as Sub-Saharan Africa. Our aim here is to develop an effective healthcare policy/solution to tackle the problem head on.
Prosthetics: The challenge here is to make prosthetic limbs which can be integrated with body part and can effect movement by sensing facial expression, muscle movement, eye motion etc. (for ex. If you are making a prosthetic hand then the muscles of the upper part of the hand can be used as stimulus for movement of the prosthetic limb.
- Treatment for drug-resistant bacteria.
- Treatment of water contamination
- Improvement in rural health.
- Low cost diagnostic solutions for diseases like Malaria, Tuberculosis and AIDS etc.
- Mechanisms for safe disposal of medical waste.
- Low cost solutions for Potable Water.

Note: The above list is not exhaustive. If you can come up with any other such problems, solutions for them are also invited.

Rules:

- Participation will be in teams of three. The participants will bear their travel and accommodation on their own.
- During all stages of the event, the decision of a judge will be considered as final and should be respected by the participants.
- Pharmacy Association bears the right to intervene during extreme cases.

Contest:

- The event is divided into 3 phases:
 - i. Phase 1: Submission of the Executive Summary.
 - ii. Phase 2: Mentor-ship Phase.
 - iii. Phase 3: Final Presentation of Complete Business Plan in front of a panel of judges at BITS Pilani (26th march, 2017)
- The first stage includes submission of the executive summary for your business plan to **pharmaapogee17@gmail.com**, the last date for the submission is 14th February 2017. Results of the first stage will be declared on 25th February 2017. Further details regarding the problem statement, competition structure, rules etc. procedure can be obtained here.

Judging Criteria:

- The submitted entries will be judged on the basis of their economic outcomes, feasibility and some of them will be filtered out during each stage.
 - The finalized B-Plans will be judged by a panel of judges on the basis of their presentation of the ideas.
-

Media Mania:

Test your skills in the world of Journalism.

This event aims at bringing out the hidden journalist inside you. Participants will be tested on their 'Awareness', 'Reporting skills', 'Communication skills' and whatever one can imagine of, by the word "MEDIA". Specific details and rules of the various rounds of this event will be declared on the spot to retain the surprise element.

If you are a maniac for media, then MEDIA MANIA is just the right event for you!!!

Eligibility:

- All BITSians are eligible with no pre-requisites.
- Participants of any college other than BITS Pilani should be registered for APOGEE-2017.

Rules:

- On Spot registration
- There will be an elimination round at the start that will test your basic journalist skills.
- Then a limited number of teams will be selected.
- After a few rounds there will be a wild card entry from the audience based on a written questionnaire.
- Final rounds will test the analytical skills, wit, judgment, promptness and perspective of the participating teams.
- Team Size: 2 members Judging Criteria
- Different rounds will have different criteria.

Judging Criteria:

- On one side there will be some straight point based rounds whereas on the other side some rounds will test your creativity, humor and innovative skills on stage.
-

iReport:

An online event based on the: Art of News Reporting on TV.

Your chance to showcase your art of reporting.

Show your creativity & sense of humor and get cracking with short video clips in which any event is being reported. Apart from a video camera, this event requires innovation on your part and you get to put forward the best funny ideas you can come to.

So Lights! Camera!! Report!!!

Rules:

- A team can have upto 3 members.
- The maximum duration of a clip should be 2 minutes.
- Send the Youtube link of your short video(s) to us at ahp@bits-apogee.org

Eligibility:

- All BITSians are eligible for the event with no prerequisites.
 - Participants from other colleges must be registered for APOGEE-2017
-

Daily Redesigned:

A pre-APOGEE workshop on Microsoft publisher, Photoshop and page maker to give you an oversight of designing part, provide you with the news and the content and come up with an eye catching front page!

For media enthusiasts and even those who would like them to be!

Rules:

- Team size: Individual
- Page size should be standard A3.
- Language can be both *English and Hindi*; Hindi would be awarded preference in case of a tie.
- Participant would be provided with around 10-15 headlines, containing news items from all fields (viz. politics, sports, entertainment, business, etc.). One can choose any number of the given news and come up with a front page that catches all the eye-balls.
- Participants need not include the whole article in their entries. The news can be modified in terms of language, content length, headline and they can also add an apt photograph, if at all they wish to.
- *Cartoons, polls, advertisements, etc are entirely entitled to the choice of the participants.* However, the advertisements are constrained to cover not more than one-sixth of the page. (In case of a tie, the one with lesser advertisements would be preferred).
- Along with the designed page the participants need to submit a write-up containing the following details:

- i. Name
- ii. Any one Email Id
- iii. Contact number

Judging Criterion:

- Placement of articles.
- Design.
- Clarity of content.
- Creative use of non-text component

Panorama:

An exhibition-cum-photography competition for all shutterbugs and photography enthusiasts who wish to show off their work to everyone else and win prizes in the process.

Rules:

- This is an online event.
- There are 4 categories under which entries can be given. The categories will be uploaded on photog page and posters.
- The entry must be the original work of the participant.
- A single participant can give a maximum of 2 entries for EACH category. It is NOT compulsory to participate in all four categories.
- The entries must be submitted by the midnight of 20th March 2016, in the format given

below:

Title, Category, Student, Name, College Name, Phone no.

Minimum size - 1200 * 800 pixels

Aspect ratio - 3:2

- Entries are to be sent to photog.bits@gmail.com with the subject "Panorama". The entry should clearly mention which category it belongs to. Kindly make sure there are no watermarks or captions on your entries.
 - The best entries will be displayed in APOGEE 2016's exhibition.
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Zombie Mathematics:

Answer the tricky questions of your opponents and restrict their moves.

It will be an online game where two teams will be playing against each other. The motive of each team will be to answer questions on each of its move in order to restrict other's way. The team that will survive till end, will be the ZOMBIE of the event!

Eligibility:

- Online as well as on spot registrations will be there.
- Open for all those who want to witness a zombie apocalypse

Rules:

- Come in teams of maximum 2
- You cannot use internet or mobile phones during the event. If any team is found guilty, it will be disqualified.
- In case of any conflict the final decision will be of the event coordinator.

Judging Criteria:

- The team that will survive in the battle with all the other participating teams will be the ZOMBIE of the event. The most resistant zombie will be declared as winner.
-

Gambling Mathematics:

Come with your team and show your skill to gamble in real time.

Eligibility:

- Anyone is eligible for this event, all you should know is- How well you can handle your money (points in this event!). You need not know rules of Gambling as they would be told on spot at the event.

Rules:

- Come in teams of maximum 2
- You can register online for this event (can register as teams or can join a team). On the spot registrations are also available for this event

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- You cannot use internet during the event. If any team is found guilty, it will be disqualified.
- In any case of any conflict the final decision will be of the event coordinator.
- The event will be conducted in two rounds, with participants in teams (max of 2).
The first round (Eliminations) will be a gambling session where teams will gamble on mathematics related questions on an online interface. The aim is to score as high as possible.
The second round will be a gamble session on Mathematical Puzzles that require some tricks.

Judging Criteria:

- First round will be an elimination round
 - The team with maximum money (points) at the end of the event will be declared as winner.
-

Treasure Hunt:

Tests a person's analytical reasoning to the utmost, Treasure Hunt allows a group of people to test their knowledge, deductive and analytical skills to solve ingeniously crafted clues to progress through the event.

The clues will vary from pen-and-paper ones to props and objects to set-up-locations on campus for the participants to deduce the solution from. An elaborate grand connect will top it all off.

Eligibility:

- Open to all

Rules:

- No limit on team size.
- Registration on the spot.

Judging Criteria:

- First teams to solve all clues and grand connect wins the Treasure Hunt.
-

APOGEE JAM:

Rules:

- Individual participation.
- On-spot registration.
- Participants need to speak without any errors, the types of which will be explained in detail prior to the JAM.
- To get the general idea, errors include, among many others, hesitation, speech defects, repetition, logical inconsistencies, plagiarism and, most fundamentally, grammatical errors.
- When a speaker makes an error, other speakers can object and get to speak, if their objections are valid.
- The length of one round equates to 1 minute of speaking time.

- Points are awarded for the duration of speaking time and for the correct objections made. The scoring system will also be explained during the JAM.
- The event will consist of preliminary rounds of six to eight speakers from which the best handful will move on to the final.

Contest:

1. Elims :
 - 15 Questions (MCQs and Fill Ups) 2marks each.
 - Six Contestants qualify for the main event
2. Round 1:
 - Each participant has to present his/her views on a Socio-Political topic for Five minutes.
 - Around 8-10 topics are present . They are written up in chits and the participant have to pick one chit and speak on that topic. Around 1-2 minutes are given for preparation .
3. Final round:
 - Based on Round 1 , two participants are shortlisted for the final round . They are given a common topic on which they have to prepare a presentation of Fifteen Minutes.
 - JAM (Just A Minute) is a speaking event where participants talk, for as long as they can, on a given topic - until they make a mistake, which other participants can object to.

Judging Criteria:

- All decisions made by the moderator (or judge) are final.
 - In the case of any discrepancies, refer to the above rule.
 - Winners will be decided based on the total number of points scored.
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Pictionary:

All those dumb-charades lovers, here is an event for you...come, unleash the "creative coder" inside you in this fun event. Get your teammates to correctly guess the word by animating it through a piece of code.

Eligibility:

- Open for all.
- A team of minimum 2 players.

Rules:

- The game will have a certain time limit to convey the given word/phrase.
- The player cannot communicate to the teammates in any way but through the software.
- The player is not allowed to give any direct hint of the word by writing it on the screen or in any other way.
- On-the-spot registrations

Judging criteria:

- The team who solves DRAWS the maximum questions in minimum time
-

Chem Wars:

An event that requires you to put in every strategy you have got with the knowledge of chemicals. Attack your rivals, defend yourself, and do everything in an eventful journey to make sure, you are the last team standing.

Eligibility:

- Open to all

Rules:

- Teams of two.
- The event host has the final say in case of clashes.
- In the third round, after the attacked team fails to answer the question, if the buyer of the question fails too. Then thrice the points will be deducted from them too.

Contest:

- First Round- Money earning round: A set of riddles is provided to each team and points are awarded depending on time taken and number of questions correctly answered in the crossword. The points earned are converted to virtual money.
- Second Round- Resource Buying Round: The teams qualified are asked to buy chemicals, reagents etc. by bidding. Further, a number of chemicals are shown on slide and the teams have to form reactions with their chemicals bought and shown. The heat of reactions of all correct reactions is added and this is converted to points.
- Third round- all-out war: The questions are sold to the highest bidder and the buyer is given options either answering the question or use it as an attack on others depending on. The buyer gets double the points for answering it but lose double the points too for the incorrect answer. If the attacked team fails to answer the question, thrice the points will be deducted but if they answer they get thrice the points.

Judging Criteria:

- The team with the highest War Points wins.
 - In case of tie, the team with the more points in the previous round proceeds.
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