IIT GOA'S

CEPHEUS

1ST TECH FEST

RULE BOOK

CEPHEUS'21
ANNUAL TECHNICAL FESTIVAL OF IIT GOA
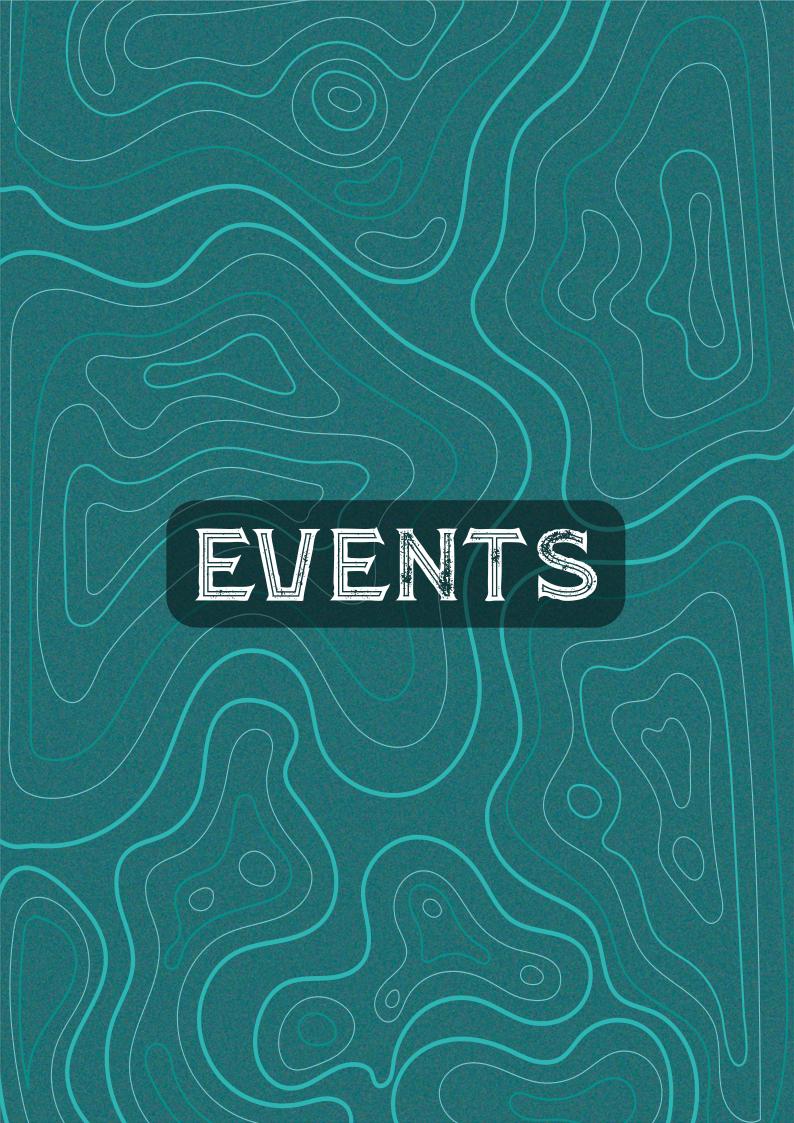
INDIAN INSTITUTE OF TECHNOLOGY GOA
विद्या विनयेन दीप्यते

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General Rules

1. Every participant is expected to behave politely with organisers, volunteers and other participants.
2. The decision of the judges will be final and binding in all the events.
3. Misconduct or potential malpractice in any form will be penalised and may include disqualification and/or ban.
4. Participants are advised to be present at the respective meeting platforms in advance to avoid last-minute hassles. Any request for a delay will not be entertained.
5. Participants are requested to ensure the proper functioning of their login credentials. Any anomaly must be informed well in advance so that necessary steps can be taken to resolve it beforehand.
6. It is the participant's responsibility to have a stable internet connection. Dealing with any discontinuity in the event on the participant's side is not the organisers' responsibility.
7. Participants must further abide by the specific rules of the individual competitions/events which are stated in the rule book.

Rules and regulations of the events are subject to change at the discretion of the organising committee. However, the participants will receive prior notifications if any such changes were to take place. It is strongly advised that the participants only refer to the latest rule book, available on the IIT Goa website, in order to avoid any confusion.

EVENTS

Arduino's Trial

Event description -
Welcome to the Arduino's Trial ! You are all summoned!!!
This challenge is based on the Atlantis, The Lost City,in which our judge Mr. Ardeenee would test your skills of Arduino, both theoretically and practically, and only the best would be proved innocent by the court of Ardeenee and win amazing prizes

Team Specifications -
Team should consist of two members only, each currently in any UG stream and not necessarily from the same college only. All work will be done on online software and hence hardware is not required.

Conduction Procedure -
1. The event will be conducted online on the Zoom platform and you would remain connected with us via Discord. You can interact with your teammate via any preferable medium.
2. The event consists of two rounds, each of two hours duration, one on each day.
3. Each round will consist of a quiz related to arduino and a problem to work upon.
4. You will be given a blank project on Tinkercad on each day of the event to work on the problem statement.
5. As the event on each day ends you have to submit your code file and snapshot of the circuit via google form which will be shared on the day of the event.
6. Participants are expected to join 15 minutes before the start of the event.

Rules -
1. No participant should register from 2 or more teams or else, his or her team's participation would be cancelled.
2. You have to ensure good internet connection and power backup at your end. Any case of internet issue will not be our responsibility.
3. Any attempt to tamper with the online meeting or submitted solution or disturbing other participants would result in disqualification from further participation.
4. Participation in the quiz is necessary for going to further, if anyone misses the quiz their team would be exempted from participating in the event.

Rules –

5. All submitted entries would be checked for plagiarism and appropriate action will be taken if found.
6. All the decisions of the organising committee would be final in case of any disputes.

Pre requisites –

1. Teams should be familiar with Tinkercad and both members must have an account on it.
2. Should have clear concepts about theory of Arduino and its parts.For the competition, we would use arduino uno.
3. Should be familiar with arduino programming which includes major libraries ,sensors, motors, lcd displays,buzzers etc (microbit not included) which are present in tinkercad.
4. Should be familiar with Arduino communication protocols.

Judging criteria –

Round 1 : 40 marks
Round 2 : 60 marks
Judging would be based on :

    Working of circuit and code
    Early submission
    Neatness and Readability of code
    Any uniqueness and creativity.

Overall winner will be decided on the total score of both the rounds.

Contact-

1. Ujjwal : 8360644911
2. Shubham Garg : 9340609897

Circuital Dilemma

Event description –
The Event is about designing the best possible circuit for a given logical problem statement.
The problem statement will test your logic (intelligence) as well as examine your application skills of using basic circuit elements. The event will be conducted via google classroom.

Team Specifications –
1. A team can have a minimum of 1 and maximum of 3 members.
2. Only Leader will get access to Google Classroom.
3. Team name should be unique. (it should not be inappropriate or offensive in any manner).

Conduction Procedure –
The event will consist of two stages-
1. Stage 1 :
   • Stage-1 will be conducted on (Day-0) at sharp 4:30pm and will end at   6:00pm.
   • It will consist of Three problem statements of varying difficulty.
   • Solution should be submitted in pdf format in the classroom.
2. Stage 2 :
   • Stage-2 will be starting on (Day-0) at sharp 9:00pm and will end at 11:59am at (Day-2).
   • It will consist of 2 problem statements related to real life application.
   • You have to submit a report that contains → approach to the solution (block diagram) , circuit, simulation (if any), conclusion.

Rules –
1. The whole event is conducted through Google Classroom.
2. The problem statements will be released in Google Classroom.
3. Leader has to submit the solutions in the classroom itself (strictly before the deadline).
4. All the groups are allowed to participate in both stages.
5. Only the leader is allowed to ask queries.(either through discord or through google classroom).
6. No one is allowed to represent more than one team.

Pre requisites –
1. Boolean algebra, logic gates, digital circuit elements.
2. Relevant references will be provided.

Judging criteria –
1. Stage 1 :
   - The first stage consists of 3 problem statements.
   - Marks distribution 30,30,40.(easy, easy, medium)
   - If the participants complete the first stage within 45 min, provided that all the answers are correct, then a 20% bonus will be awarded to that participant that is 100+20.
   - If the participants complete the first stage within 1 hour, provided that all the answers are correct ,then a 10% bonus will be awarded to that participant that is 100+10.
   - Evaluation criteria will be based on Marks > Time > Difficulty of Question (3>2>1).
2. Stage 2 :
   - The second stage will consist of 2 real life application problem statements each carrying 100 marks.
3. Final Judging will be based on total marks obtained in stage-1 and stage-2 (stage-1 i.e. 30% and stage-2 i.e. 70%)

Contact –
1. Jay Chawrey : 9307432041
2. Aditya Jain : 9680639902
3. Shantanu Wagh : 7875214466

FizzBuzz

Event description -
Hey there coders! Brace up to wrack your brains and test your problem-solving skills. We present to you FizzBuzz, a competitive coding contest! It will be 3 hours long and the questions will be based on various concepts from DSA and CP. For the first time in our college, the leaderboard of this contest will be based on the ACM ICPC style !

Team Specifications -
Only individual participation is allowed.

Conduction Procedure -
1. The contest will be conducted on HackerRank (https://www.hackerrank.com/)
2. It is required to have an account on HackerRank, preferably using the institute email id. Do check out the site environment and editor before entering the contest.
3. The total duration of the contest will be 3 hours and no extra time will be given in case a participant is late.
4. There will be a restricted discussion forum in case someone has doubts. Only the moderators will be allowed to answer and resolve the queries.

Rules -
1. Questions will be categorized in Easy, Medium, and Hard difficulty levels.
2. There will be a total of 6-7 questions.
3. The first 2 questions will be beginner-friendly, and the difficulty level will increase gradually.
4. Copying code snippets without mentioning the source will be considered as plagiarism.
5. In case codes are found to be copied amongst the participants, the participants involved will be disqualified.
6. All decisions made by the organizing team shall be final in case of a dispute.

Pre requisites –

1. Basic knowledge of any programming language, preferably C++, Python or Java.
2. An account on Hackerrank.

Judging criteria –

1. Ranking will be based on :
    *   Number of problems solved (more is better);
    *   In case of a tie, the total time for all accepted submissions is taken into account (less is better);
    *   Time is measured from the beginning of the contest until the submission was accepted by the online judge, where each rejected submission adds 10 minutes penalty time.
    *   If there is still a tie, the time of acceptance for the last problem solved matters (less is better)
2. Submissions containing Compilation errors won't be penalised.
3. There is no time penalty if a problem is not solved.

Contact –

1. Kartikey Sharma : 8384078124
2. Yash Parmar : 7000311028

HackOverflow

Event description –

There will be one problem statement.On which you have to work and come up with a solution in given time duration. The event focuses on the development of Web or App. The website/app must fulfill the standards, and you are free to add your creativity, which would be one of the parameters for judgment.

Team Specifications –

1. Team size – 4 members.
2. Every team must have a unique team name. Organising team reserves the right to reject entries from any team whose name it deems inappropriate, offensive or conflicting.
3. Team name cannot be changed during the event.
4. Teams would have to sign a declaration before participating stating that they will abide by the rules and regulations of the competition and the Institute.
5. Participating teams are required to be present in full strength at the time of the event.

Conduction Procedure –

1. The team leader will be given the problem statement via whatsapp or email 10 minutes prior to the event.
2. Each team should have a Captain, who is responsible for communication with organisers about issues during the event.
3. After the problem statement is announced you will have 32 hours to develop a web/app and submit the zip file of the codes according to the instructions provided before the event ends.
4. The team will have to present the solution in the given time slot which will be announced after the time limit(6 PM).
5. Teams will be given up to 15 minutes to present their finished project to a panel of judges.

Rules –

1. Committee members are not eligible to participate in the hackathon. They may, however, assist teams as mentors during the coding/development phase.
2. Any software development tools, IDE, technology and/or programming language can be used for the event.

Rules -

5. All decisions made by the organizing team shall be final in case of a dispute.
6. Your hack must be developed entirely during the event duration.
7. The intellectual property of your code belongs only to your team.
8. Teams can be disqualified from the competition at the organizers' discretion. Reasons might include breaking the competition rules, breaking the code of conduct, or other unsporting behaviour.
9. Rules and regulations of the event may be subject to change at the discretion of the organizing committee. However if any such changes occur, the team captain will receive prior notification.
10. Failure to submit will result in disqualification.

Judging criteria -

1. In the event the judges' decision will be final and binding.
2. Judging panel will be decided by the organizing committee.
3. Scoring mostly depends on the presentation. If you fail to do so then you are automatically disqualified.
4. Judging Rules :-
   • Creativitity and Innovation
   • Design
   • Completion and Elegance
   • Saleability and Scalability
   • Realistic Capability

Contact-

1. Yash Parmar - 7000311028
2. Siddharth Singh Solanki - 8818882132
3. Shubhanshu Tomer - 8929661054

Pandora's Box CTF

Event description –
Pandora's Box is the Capture the Flag(CTF) competition in Cepheus2021, the official tech fest of IIT Goa. CTFs are a type of competitive hacking event in which the teams participating will get tasks or challenges related to different aspects of cybersecurity. Each challenge will have a goal, i.e. to find the hidden flag. Submission of flags gives varying points to the team according to the difficulty of the challenge. The team with more points within a shorter time will be the winner.

IIT Goa's Pandora's Box CTF is going to be a Jeopardy style CTF involving categories like Web, Cryptography, OSINT, Steganography, etc.

The general format for flag submission is PBCTF{}. Whatever you are getting as flags from the challenges, you have to submit by enclosing that inside the braces of PBCTF{}. If there is any change in the flag submission format for any specific challenge, that will be mentioned in that particular challenge's description.

eg: In general, if you get the flag as "h3ll0_w0rld!",
        you have to submit it as PBCTF{h3ll0_w0rld!}.

Team Specifications –
1. A team can consist of 1-3 members.
2. Participants should only be a member of a single team.

Conduction Procedure –
Using CTFd Platform hosted on an external server

Rules –
1. Team members must give their real names, usernames going to be used for competition, personal email id, and phone numbers in the registration form to verify their identities and to collect prizes.
2. Participants/Teams are not allowed to carry out any attacks on the CTF infrastructure or on other teams/individuals.
3. No DoS/DDoS/BruteForcing/Automated Scans or any other practice generating any large amount of traffic by any other means on any challenges and the contest infrastructure. It is not permitted and is never intended in any challenge.

Rules –

4. Any kind of malpractices against any challenge or against the platform will result in disqualification of the team.
5. Sharing the flags/solutions/writeups with anyone outside of your team when the competition is live is strictly prohibited.
6. CTF organizers have every right to amend the existing rules or introduce new rules at any time before/during/after the contest. Any such rules must be followed by all the members of each team.
7. If you find any flaws in the CTF infrastructure, you have to report that to the organizing team immediately instead of exploiting it or sharing/disclosing it with others through any public platforms or by other means.
8. By participating in this contest, you agree that you have read the above rules and fully agree to adhere to them.
9. We may add/remove/modify the challenges during the contest.
10. Any further updates will also be shared through our Discord Channel.
11. The decision of the organizing team will be final.
12. If anyone is found to break the above mentioned rules, the whole team will be disqualified and removed from the event. We may also disclose your team name, members, and IP if such malpractices happen.

Judging criteria –

1. At the end of the CTF, on the scoreboard, the teams with the highest score are identified and are entitled to a prize.
2. In case the score is equal, the first team (in a shorter time) to reach the score is considered as first

Pre requisites –
Laptop/PC with a good internet connection

Contact–
1. Devang Jain : 8764151448
2. Hashir : 9048881188

Unite for Unity

Event description –
This is a game development event. The main objective of this event is to acquaint individuals with the tools and resources to design a game using the Unity Game Engine. Thus the event is divided into two themes :
1. Beginner – which is ideal for students just starting with game dev.
2. Intermediate – Ideal for students who have some experience with unity and have finished atleast some minor projects.

Team Specifications –
1. Team size : 3-4 members.
2. The team members should be currently in any UG stream and not necessarily from the same college only.
3. Every team must have a unique team name. Organising team reserves the right to reject entries from any team whose name it deems inappropriate, offensive or conflicting.
4. Team name cannot be changed during the event.

Conduction Procedure –
1. This is a 48 hour long offline event. Participants have to design a game using UNITY software on the theme chosen.
2. Discord server will be used to maintain communication between the organisers and participants.
3. Teams can participate in any one of two themes (1) beginner, (2) Intermediate based on their expertise.
4. Theme details will be released at the time of event commencing.

Rules –
1. No participant should register from 2 or more teams or else his or her team's participation would be cancelled.
2. Teams are allowed to participate only in one of the above two themes.
3. Both the themes will be judged and awarded separately.
4. All submitted entries would be checked for plagiarism and appropriate action will be taken if found.
5. You are free to use your creativity and include graphics/ sounds.
6. All the decisions of the organising committee would be final in case of any disputes.

Pre requisites -
1. Unity software should be installed with proper functioning.
2. Basic Programming knowledge (C/C++/C#)

Judging criteria -
1. Teams will be judged based on :
    *   Completion
    *   Originality (uniqueness of concept)
    *   Creativity and Innovation
    *   Design
    *   Bugs and run-time errors
    *   Game Interface and Layout
    *   Overall gameplay experience
2. The judges' decisions will be final and binding in all matters relating to the Game Challenge.

Contact-
1. Jitendra Yadav : 9434493761
2. Bhawna Dushad : 9306526110

<u>Frame the Crane</u>

Event description -
In this offline event you will have to design the tower crane as per mentioned dimensions and constraints such that it can carry maximum load with minimum weight.

Team Specifications -
1. All teams can have a maximum of 4 members.
2. Team name cannot be changed during the event.
3. No two teams can have common members.
4. A team name should not be offensive to anyone. Organizing team reserves the right to reject entries from any team whose name it deems inappropriate, offensive or conflicting.

Conduction Procedure -
1. Problem statement will be out on 12:00 noon on 12th January, 2021.
2. Last date of submission is 3:00 PM on 16th January 2021.
3. Conduction platform — Discord

Rules -
1. Simulations must be done on Ansys software.
2. The load shown in simulation file following all the constraints and without failure will be consider as maximum load.
3. Plagiarism of any kind will not be accepted. The team that does so will be disqualified immediately.

Pre requisites -
1. Ansys — for simulations.
2. Any CAD software for design purpose.

Judging Criteria -
1. Weight of crane
2. Boom radius (Distance at which load is applied)
3. Load carried

Contact -
1. Shivom Aghalte : 8669132952
2. Darshay Naik : 9913759592

Cool your Engine

Event description –
1. This is an online event.
2. You will be given all required files for the event.
3. You are required to design a heat shield for this engine and perform simulations on the same.
4. It is expected that the lowest possible temperature is attained along with uniform temperature distribution.

Team Specifications –
1. All teams can have a maximum of 3 members.
2. Team name cannot be changed during the event.
3. No two teams can have common members.
4. A team name should not be offensive to anyone.
5. Organizing team reserves the right to reject entries from any team whose name it deems inappropriate, offensive or conflicting.

Conduction Procedure –
1. Conduction platform – Google Classroom.
2. Duration of Event is 5 days starting from 12 pm on 12th January,2021 till 3pm on 16th January 2021.

Rules –
1. Simulations must be done on Converge CFD software. (license will be provided)
2. The participants have to submit a simulation file, design file and a report according to Submission policy.
3. Plagiarism of any kind will not be accepted. The team that does so will be disqualified immediately.

Pre requisites –
1. Converge CFD – for simulation.
2. Any CAD software can be used for design purposes.

Judging Criteria –
1. Lowest temperature achieved.
2. Temperature distribution
3. Aesthetics

Judging Criteria –

4. Weight and Size of the entire structure.
5. Strength of the structure.
6. Report – (method approach, explanation of solution and calculations

Contact –

1. Saket : 7499136037
2. Darshay Naik : 9913759592

WORKSHOPS

Fiducia

Workshop description -

Due to their large and complex attack surface and the difficulty in ensuring they are secure, web applications continue to be a prime target in attacks. All it takes is a flaw in the application
itself, its framework, the web server or proxy server configuration, or even some third-party component (e.g. a JavaScript library that is embedded on each web page) to lead to a full compromise of a host or network.
In this session, we will talk both generally about the trends in web application security and look at specific examples of how key vulnerabilities arise (e.g. discussing how, tainted user input can reach dangerous functions within some layer of the system), paying particular attention to those more subtle cases that usually go under the radar, such as within HTML5 applications. The webinar will also explore hacking scenarios based on real-world examples.

Team Specifications -

1. Individual paricipation

Contact -

1. Kaushal : 8669132952
2. Hashir : 9913759592

Chit-Chat with Chatbot

Workshop description -
A live Coding Workshop that guides a complete beginner in building a CHAT BOT from Scratch which aims to serve human queries and give feasible answers! This would be followed by a contest to make the best chatbot for a given problem statement.
- This is an online event.
- Participating teams are required to be present in full strength at the time of the event.
- The problem statement will be provided at the time of the main event.

Team Specifications -
1. 3-4 people.
2. Even if you are unable to find a team, feel free to register with us. We will try to match you up with other solo interested participants.

Rules -
The main event is in the form of a live coding workshop where you can code along with the presenters followed by a chatbot implementation competition.
1. Max 80 teams will be registered. FIRST COME FIRST SERVE policy.
2. Every team should have at least one member with a PC/laptop.
3. In case of any dispute, the decision of the organizing team shall be final and binding.
4. Your submitted implementation of the chatbot may be used by us in future for our purposes.

Pre requisites -
1. Basic knowledge of programming language python is a prerequisite. But everything else will be taught from scratch, so no worries.
2. It is recommended that you install the RASA framework on your pc. You can refer to this link (https://rasa.com/docs/rasa/) for installation. If you are unable to install, don't worry, We will give a short demo for installation too in preparatory session.

Contact -
1. Siddharth Solanki : 8818882132
2. Sanjay Mareddi : 7095810642

Take Charge

Workshop description -

1. Take Charge! is a hands-on workshop on Linux CLI. Linux is a family of open-source operating systems based on the Linux kernel. Using the CLI gives you full control over what you perform or execute, unlike GUI, in which a lot of processes go on behind the scenes.
2. We'll start off with a theoretical brief about Linux, what all it can do, and why it's useful.
3. The participants will be guided through a process of installing Windows Subsystem for Linux, to enable them to use the Linux terminal, even on Windows.
4. The basic commands will be covered first. More complex commands will follow, which enable us to solve problems using the command line.
5. Debugging will be discussed side by side.
6. It will be a live hands-on workshop, conducted on Zoom.

Team Specifications -

1. Individual Participation

Pre requisites -

1. A laptop and a good internet connection

Contact -

1. Sejal Gupta - 9968065012
2. Devyani Maladkar - 9422029653

Pythonize Everything

Workshop description –
A workshop where participants will learn how to use python to automate repetitive mundane tasks like sending emails, sending WhatsApp messages to a list of contacts, editing images, and much more. At the end of the event, the participants will get access to other useful python scripts to automate even more interesting tasks and the source code of the live project.
The event will be live through Google Meet/Zoom

Team Specifications –
1. Individual participation.

Contact –
1. Nidhish Sawant : 8668208957
2. Siddharth Shah : 6354574977

Contact Us

1. Overall Coordinator : Shreyas Pawar – 9730587495
2. Events Overall Head : Aadil Khan – 8652845505
3. Public Relations Head : Anmoldeep – 9682118778

Event Heads

Arduino's Trial	Ujjwal Rana	8360644911
Circuital Dilemma	Jay Chawrey	9307432041
Fizzbuzz	Kartikey Sharma	8384078124
Hackoverflow	Yash Parmar	7000311028
Pandora's Box CTF	Devang Jain	8764151448
Unite for Unity	Jitendra Yadav	9434493761
Frame the Crane	Shivom Aghalte	8669132952
Cool your Engine	Saket Kohinkar	7499136037
Fiducia	Kaushal	8669132952
ChitChat with ChatBot	Siddharth Solanki	8818882132
Take Charge	Sejal Gupta	9968065012
Pythonize Eveything	Nidhish Sawant	8668208957

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  Twitter – @cepheus_iitgoa (https://twitter.com/cepheus_iitgoa)
- Join our Official Discord Server – (https://discord.gg/bbnt3RFxzH)