

# IEEEXtreme Rules

## **Description**

IEEEXtreme is a global competition in which teams of IEEE Student members and Graduate Student members, proctored by IEEE Members, compete against each other to solve a set of programming tasks in a 24-hour time span. If you are not an IEEE member and you are interested in participating in IEEEXtreme click [here](#) to join now.

## **Sponsor**

The IEEEXtreme Programming Competition is sponsored by The Institute of Electrical and Electronics Engineers, Incorporated, 445 Hoes Lane, Piscataway, New Jersey, USA, 08854 (“Sponsor” or “IEEE”). It is organized and managed by the Student Activities Committee under the Member and Geographic Activities business unit of IEEE.

## **Start and End Times**

The competition starts at 00:00 UTC and ends at 23:59:59 UTC on the date of the event. The Sponsor reserves the right to adjust the start and/or end times of the competition should the need arise.

## **Benefits**

The competition was created to:

- Provide IEEE Student members and Graduate Student members with an interesting IEEE activity
- Give competitors an opportunity to embrace teamwork – an important skill to develop for career success
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- Increase awareness within IEEE students around IEEE core activities related to information and technology topics

## **Eligibility**

Participants must compete as part of a team. A team is composed of up to 3 IEEE Student or Graduate Student members, but can include a maximum of only 2 Graduate Student members. Teams may be affiliated with an IEEE Student Branch but this is not required to participate. All team members must be IEEE Student or Graduate Student members to register in the competition. IEEE Membership numbers are required during the registration process. All team members must be over the age of 18 at the time of registration. Only those members who register in a team are allowed to participate in the competition. Substitution of those who are not registered is specifically prohibited. Universities and Colleges can have multiple teams.

Prior to registration, each team is responsible for locating one or more eligible proctors (see below), who will monitor the team during the competition. IEEE members of grades higher than Undergraduate Student or Graduate Student can register as Proctors and they will all be listed on the IEEEXtreme website (<https://ieeextreme.org/>) so registrants may choose from the list.

In order to rank in the competition, a team must have a Proctor of Record. A Proctor of Record is a candidate for Proctor of Record who confirms their participation in a response to an email sent upon their team registering. Should the candidate not respond to the email, their team may participate but will not be eligible for prizes or participation certificates nor will their ranking in the competition be included in the final rankings. It is the team administrator's responsibility to verify the status of the candidate proctor prior to the competition (the team administrator is the Student who registered the team). The Proctor of Record can delegate proctoring responsibilities for portions of the competition period, but will remain the primary point of contact should the IEEE need to discuss the team's participation in the competition.

Competitors may seek out and utilize internet resources before and during the contest. Use of internet resources must be clearly referenced in a comment in the team's code including the URL(s) where the information was found. Proctors may not help teams with their submissions.

IEEE reserves the right to disqualify any team that violates these rules or the spirit of the competition. Void where prohibited by Law. Entrants understand that the Sponsor may substitute or withhold prizes as required by law.

### **Proctors**

Each team must have at least one proctor to monitor competition activities. Both team members and proctors may participate remotely in the competition this year.

Each proctor must be an IEEE member of higher membership grade. Student or Graduate Student members cannot be proctors, but they are encouraged to participate as team members in the competition.

IEEE Membership Number of the candidate proctor is required during the team registration process.

Student Branch Counselors, Mentors and Student Branch Chapter Advisors may be potential proctors, as well as other faculty members at your institution who are members of the IEEE. Many IEEE Young Professionals are higher grade IEEE members and may be eligible to serve as proctors as well.

Proctor tasks include:

- Monitor the general flow of the competition for the team
- Inform students when the competition begins, when the competition is about half way through, when there are 6 hours left and when there is 1 hour left
- Ensure that no one external to the team of students helps or assists the team in resolving the tasks in any way
- Assists with team wellness (adequate rest, nutrition and exercise)

A proctor is allowed to manage up to 20 teams. Teams may also enjoy the support of multiple proctors to share responsibilities and take shifts. Teams will assign their Proctor of Record on the registration platform in v-Tools. Proctors are responsible for ensuring that participants do not engage in plagiarism and adhere to the IEEE Code of Conduct [[https://www.ieee.org/content/dam/ieee-org/ieee/web/org/about/ieee\\_code\\_of\\_conduct.pdf](https://www.ieee.org/content/dam/ieee-org/ieee/web/org/about/ieee_code_of_conduct.pdf)]

If you need assistance in finding a proctor, please refer to IEEE Collabratec to search for higher grade members in your area. You may also contact the Student Activities Chair in your Section or your Region.

Teams must be proctored at all times throughout the 24-hour competition.

### **Tasks**

Tasks are developed and judged by experts. All entrants agree and acknowledge that Sponsor is the owner of all tasks and any associated code. Entrants further agree that they will not, without written permission from Sponsor, use the tasks or any associated code for any reason other than the competition. The panel of judges is made up of higher grade IEEE members from both academic and industrial backgrounds. Tasks will be categorized as easy, medium, hard, and hardest to assist teams of all experience levels to participate and help them prioritize the order in which they will resolve said tasks.

An individual task can be answered in any of the supported programming languages, which are indicated at a specified URL (currently <https://csacademy.com/about/environment/>). Each task will have time and memory limits, and it is possible that certain programming languages will have different limits to adjust for factors such as virtual machine overhead.

A competition practice community, with sample tasks going back as far as IEEEExtreme 10.0 can be found at: <https://csacademy.com/ieeextreme-practice/>.

### **Supported Browsers**

The browsers that are supported by the competition platform can be found here: <https://csacademy.com/about/environment/>

Please consult each browser's website for more information on running a supported version of the browser. In the 24 hours before the competition, we suggest testing your browser(s) in the competition practice community.

### **Selection of Winners**

Winners are determined strictly based on overall score as determined by the scoring outlined in the Scoring Criteria section in this page. As noted in that section, in the case of a tie, time will be considered as a factor to rank teams.

### **Requirements of Winners**

IEEE may, within its sole discretion, require each member of each prize winning team to sign and return an affidavit of eligibility and liability and publicity release, in which each winning member consents to the use of his or her name, age, hometown and photo by IEEE for advertising and promotional purposes, without any additional compensation, wherever lawful, as a precondition to award of a prize. If any prize-winning team member fails to sign and return the requested affidavit as requested by IEEE, that team member may be disqualified, and his or her prize will be forfeited. In the event that each member of a team fails to sign and return the affidavit requested by IEEE, an alternate winner will be chosen using the methods described above. IEEE may also require each winner to assign all rights in any chosen submissions to IEEE as a precondition to the award of a prize. If any prize winner fails to complete the contest requirements, the winner may be disqualified, and their prize will thereafter be awarded to an alternate winner from the remaining valid entries using the criteria specified above. All prizes, including the travel arrangements for first place winners, must be claimed within one year of notification of their prize-winning status.

Teams affected by OFAC policies who are interested in competing in the contest may still be eligible to compete but understand that access to prizes may be modified or removed by law.

### **Use of Entries**

No entries will be returned. All entries become the property of IEEE. By entering, all participants consent to the use by IEEE of all the information provided in the entries for marketing or sales promotion purposes without any attribution, identification, right of review or compensation. All entrants agree to release and hold harmless IEEE and its officers, directors, employees and agents from and against any claim or cause of action arising out of participation in the contest. By registering for this contest, entrants acknowledge and agree that any personal information that they provide will be maintained in accordance with Sponsor's Privacy Policy, which can be found at:

[http://www.ieee.org/security\\_privacy.html?WT.mc\\_id=hpf\\_privacy](http://www.ieee.org/security_privacy.html?WT.mc_id=hpf_privacy)

Entrants agree that any photographs submitted to Sponsor or posted by entrants on social media in connection with the competition may be used by IEEE for marketing or sales promotion purposes without any attribution, identification, right of review or compensation.

### **Funding Sources**

The IEEEExtreme Competition is underwritten by IEEE Membership and Geographic Activities Department.

Sponsorship opportunities are still available. Please contact [ieeextreme@ieee.org](mailto:ieeextreme@ieee.org) for more information.

### **Contest Results and Official Rules**

To obtain the names of the winners and/or a copy of these Official Rules, send a self-addressed, stamped envelope to IEEEExtreme Competition, Member and Geographic Activities, IEEE, 445 Hoes Lane, Piscataway, New Jersey 08854.

### **Venue**

In advance of the competition, the Proctor of Record and a team monitored by that proctor must agree on either a physical location in which to participate or appropriate online tools to communicate with each other and for the proctor to monitor the team. Whatever choice is made, the Proctor of Record must be able to verify that competition rules are being followed.

Should circumstances allow, proctor and one or more teams monitored by the proctor can participate in the same physical venue. As long as the Proctor of Record agrees, venues can be a location on an educational campus, such as a computer lab, a company office, or another suitable location. It must be a place that participants can use for the entire 24 hours of the competition. Teams will need some connection to the internet and at least one computer to work on. It is ideal if the venue also has space for participants to rest.

### **Student Branch Activity**

Student Branches, if able, should promote the competition, assist in identifying appropriate proctors as needed, help locate an appropriate venue for each team if applicable, and possibly use the competition to increase awareness of the Student Branch presence on campus. Student Branches may also be able to help teams with food and drink during the competition.

Students attending institutions that do not have an IEEE Student Branch on campus can still participate in the IEEEExtreme competition. This is an opportunity to bring students together to have fun with IEEE activities. Consider using this opportunity as a way to promote the idea of forming a student branch at the institution. More information on how to form a student branch can be found [here](#).

### **Scoring Criteria**

30 points are awarded for correct answers. 70 extra points can be awarded depending on the task "difficulty". The difficulty of any task comes from the average points teams scored on it; should many teams solve the same task, that task is deemed to be very easy and no additional points will be awarded for that task. However, if few teams solve a task the task will be deemed difficult and will be credited with additional points. This scoring schematic makes the competition and your placement within the ranking very dynamic. Sharing a submission in full or in part with other teams is strictly prohibited and will result in disqualification.

Note: Time is not directly included in the scoring formula. Its purpose is to break ties, so teams that end up with the same total score, but solve cases for the tasks more quickly end up higher in the standings if they are otherwise tied with other teams. Since teams are not penalized for the number of times a solution is submitted, it is recommended that teams try to solve the tasks as quickly as possible.

The exact formula for calculating the points value of a task:

$$\text{Problem Score} = 30 + 70 * (1 - \text{Average Points})^2$$

Where

$$\text{Average Points} = \frac{\text{Total points for all test cases obtained over all teams}}{\text{Total points of all test cases} \times \text{Number of teams}}$$

Average Points can be a number between 0 and 1, where 0 represents tasks that no one solved, and 1 represents tasks that all teams solved.

### Partial scoring:

Tasks contain more than one test case. Those included in the sample will carry less weight whereas hidden cases will carry more weight on a varying degree depending on difficulty.

The higher number of solved cases a team submits, the higher the score will be. Therefore, should a team solve 3 out of 5 possible cases, while another team solved 5 out of 5, the team solving 3 would receive partial credit for that task.

$$\text{Submission Score} = \text{problem score} * \frac{\text{Sum of correct test cases' weights}}{\text{Sum of all test cases' weights}}$$

Rank is decided primarily by summing submission scores. However, total submission time, as defined below, will be utilized to break ties. Ex: Team A and Team B can have the same sum of submission scores, let's say X, but then have different ranks, say Rank 2 and Rank 3. This means the Team with higher rank was faster to solve tasks compared to the other team.

### Total submission time:

Submission Number	Task Number	Submission Time	Sum of correct test cases' weights divided by Sum of all test cases' weights
1	2	1:05 am, UTC	0.20
2	3	2:05 am, UTC	0.90
3	2	3:05 am, UTC	0.70

4	2	4:05 UTC	am,	0.70
5	2	5:05 UTC	am,	0.60

To calculate the total team submission time for the example in the above table, we consider the best submissions for each task (both of which were released at 12:05 am, UTC). For task 3, the best (and only) submission occurred 2 hours into the task. For task 2, the best submission occurred 3 hours into the task. Note that if an identically scoring submission occurred later, we use the earliest of these submissions. Therefore, we ignore submissions numbered 4 and 5 because neither of these was an improvement over submission number 3. In this case, then, the total submission time for the team for the 2 tasks would be 5 hours (2 hours plus 3 hours).

**Submission time for each task is calculated from the release of each task, not from the start of the competition.**

**Notes:**

No programming language has a significant scoring advantage over the others. (Ex: Java, C, Python, PHP, etc. are all generally equal in terms of scoring). Scores will be impacted only by submission time (and run time, and memory usage). Compiling time or similar will not affect scores.

Due to the dynamic nature of the scoring formula, scores may fluctuate throughout the competition. Interested teams may want to check in every so often to review their standings.

**Plagiarism Policy**

Sponsor retains the right to review the contestants' submissions with tools and techniques to detect acts of plagiarism. Sponsor reserves the right, at its sole discretion, to disqualify any team that is identified (during or after the competition) for inappropriate collaboration, reuse of material, and/or failing to meet the requirements as indicated by the IEEEExtreme rules.

**Prizes**

All active participants in the competition will receive a digital certificate and digital gift. "Active participant" is described as a team who makes a reasonable attempt at solving a task in Sponsor's sole discretion.

Prizes for IEEEExtreme

1st place: The winning team members will receive an expenses-paid trip to an IEEE conference of their choice, anywhere around the world. Round Trip coach airline tickets for each winner from the winner's preferred major metropolitan airport to the conference destination, conference registration fees, and a three-night hotel stay in a standard room will be provided by IEEE for

each winning team member. The maximum value of this prize is \$10,000 per team. All expenses not specified above including, but not limited to, baggage fees, ground transportation, meals, beverages, gratuities, incidentals, taxes and any costs in excess of the maximum value of this prize are the sole responsibility of each winning team member. Any unused portion of the prize is not transferable or exchangeable and cannot be redeemed as cash. All travel arrangements will be made by Sponsor, whose decisions regarding the itinerary are final. (Alternatives can be provided should travel be restricted.)

2nd place: Each member of the team that wins 2nd place in the IEEEExtreme 14.0 competition will receive a cash award of US\$400.

3rd place: Each member of the team that wins 3rd place in the IEEEExtreme 14.0 competition will receive a Cash Award of US\$300.

4th-10th place: Each member of the 4th through 10th place team members each receive an Xtreme merchandise bundle and special software gifts from competition sponsors and an Xtreme hoodie.

Top 100: All members of teams that place in the top 100 at the end of the competition will receive an Xtreme merchandise bundle and special software gifts from competition sponsors.

Taxes, if any, are the sole responsibility of each winning team member. Sponsor makes no warranties or disclaimers concerning the prizes beyond those customarily given by the manufacturer of the prizes. Sponsor reserves the right to substitute different prizes of approximately equivalent value in its sole discretion.

Void where prohibited by law.

### **Notification of Winners and Final Rankings**

After the competition day, the IEEEExtreme Technical team will be evaluating code submissions. The official results will be communicated once the final evaluations are complete. Winners and the proctors for their teams will be contacted by IEEE directly.

### **Disputes Concerning the Competition**

EACH ENTRANT AGREES THAT: (1) ANY AND ALL DISPUTES, CLAIMS, AND CAUSES OF ACTION ARISING OUT OF OR IN CONNECTION WITH THIS CONTEST, OR ANY PRIZES AWARDED, SHALL BE RESOLVED INDIVIDUALLY, WITHOUT RESORTING TO ANY FORM OF CLASS ACTION, PURSUANT TO ARBITRATION IN NEWARK, NEW JERSEY, CONDUCTED UNDER THE COMMERCIAL ARBITRATION RULES OF THE AMERICAN ARBITRATION ASSOCIATION THEN IN EFFECT, (2) ANY AND ALL CLAIMS, JUDGMENTS AND AWARDS SHALL BE LIMITED TO ACTUAL OUT-OF-POCKET COSTS INCURRED, INCLUDING COSTS ASSOCIATED WITH ENTERING THIS CONTEST, BUT IN NO EVENT ATTORNEYS' FEES; AND (3) UNDER NO CIRCUMSTANCES WILL ANY ENTRANT BE PERMITTED TO OBTAIN AWARDS FOR, AND ENTRANT HEREBY WAIVES ALL RIGHTS TO



CLAIM, PUNITIVE, INCIDENTAL, AND CONSEQUENTIAL DAMAGES, AND ANY OTHER DAMAGES, OTHER THAN FOR ACTUAL OUT-OF-POCKET EXPENSES, AND ANY AND ALL RIGHTS TO HAVE DAMAGES MULTIPLIED OR OTHERWISE INCREASED. ALL ISSUES AND QUESTIONS CONCERNING THE CONSTRUCTION, VALIDITY, INTERPRETATION AND ENFORCEABILITY OF THESE OFFICIAL RULES, OR THE RIGHTS AND OBLIGATIONS OF ENTRANT AND SPONSOR IN CONNECTION WITH THE CONTEST, SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAWS OF THE STATE OF NEW JERSEY, WITHOUT GIVING EFFECT TO ANY CHOICE OF LAW OR CONFLICT OF LAW, RULES OR PROVISIONS (WHETHER OF THE STATE OF NEW JERSEY OR ANY OTHER JURISDICTION) THAT WOULD CAUSE THE APPLICATION OF THE LAWS OF ANY JURISDICTION OTHER THAN THE STATE OF NEW JERSEY. SPONSOR IS NOT RESPONSIBLE FOR ANY TYPOGRAPHICAL OR OTHER ERROR IN THE PRINTING OF THE OFFER OR ADMINISTRATION OF THE CONTEST OR IN THE ANNOUNCEMENT OF THE PRIZES.

#### **Agreement to the Official Rules**

By participating in this contest, participants agree to abide by the terms and conditions as established by IEEE. IEEE reserves the right to qualify all submissions and to reject any submissions that do not meet the requirements for participation as established by IEEE.

#### **Additional Terms and Conditions:**

Sponsor assumes no responsibility for computer system, hardware, software or program malfunctions or other errors, failures, delayed computer transactions or network connections that are human or technical in nature, or for damaged, lost, late, illegible or misdirected entries or submissions; technical, hardware, software, electronic or telephone failures of any kind; lost or unavailable network connections; fraudulent, incomplete, garbled or delayed computer transmissions whether caused by Sponsor, the users, or by any of the equipment or programming associated with or utilized in this contest; or by any technical or human error that may occur in the processing of submissions or downloading, that may limit, delay or prevent an entrant's ability to participate in the contest.

Sponsor reserves the right, in its sole discretion, to alter, cancel or suspend this competition and award prizes from the entries received up to the time of termination or suspension should virus, bugs or other causes beyond Sponsor's control, unauthorized human intervention, malfunction, computer problems, phone lines or network hardware or software malfunction, which, in the sole opinion of Sponsor, corrupt, compromise or materially affect the administration, fairness, security or proper play of the contest or proper submission of entries. Sponsor is not liable for any loss, injury or damage caused, whether directly or indirectly, in whole or in part, from downloading data or otherwise participating in this contest.