



Date: 24 October 2020

Time: 00:00:00 UTC – 23:59:59 UTC

More Info: www.ieeextreme.org

IEEE Xtreme 14.0 Competition Rules

Description

IEEE Xtreme is a global challenge in which teams of student members, proctored by an IEEE Member, compete against each other to solve a set of programming problems in a 24-hour time span, starting on October 24, 2020 at 00:00 UTC and ending at 23:59:59 UTC. The sponsor reserves the right to adjust the start and/or end times of the competition should the need arise.

The competition was created to:

- Provide IEEE Student Members with a new and interesting activity
- Give IEEE Student Members a challenge to embrace teamwork – an important skill to develop for career success
- Increase the number of IEEE student activities with a focus on the computer, programming and information technology fields

Other benefits include providing Student Branches with ways to get IEEE Student Members involved in local activity in a fun and engaging way.

Sponsor

The IEEE Xtreme Programming Competition is hosted 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.

Eligibility

Participants must compete as part of a team. Teams are comprised of **up to 3** IEEE student or graduate student members, but can only include a maximum of 2 graduate student members per team. Teams may be supported by an IEEE Student Branch but this is not required to participate. All team members must be IEEE student or graduate student members to register and compete in the competition. IEEE Membership numbers are required during the registration process. All team members must be over the age of 18. 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 supervise the team during the competition.

In order to rank in the competition, a team must have a proctor in *confirmed* status. The specified proctor receives an email upon a team registering. The proctor then has the option to confirm or decline the request to proctor that team. Should the proctor ignore the email, the status of the proctor remains in *unconfirmed* status. At the time of the competition, all teams whose proctor remains in *unconfirmed* or *declined* status, while able to participate, will not be eligible for prizes or participation certificates. Additionally, their ranking in the competition will not be included in the final rankings. It is the team administrator's responsibility to verify the proctor's status prior to the competition.

Team members must solve and complete the problems without assistance from other people or prewritten code. Please note that the intent and spirit of the competition is for the students, not others, to solve a problem. Persons acting as Proctors must limit the level of support and must not contribute in any way. In no case will work by a proctor on behalf of a competitor be allowed. Sponsor reserves the right to analyze all submissions for plagiarism and disqualify any team in its sole discretion if the team's work is not its own.

Void where prohibited by Law. Entrants understand that the Sponsor may substitute or withhold prizes as required by law.

Registration

Registration will be open from August 3, 2020 until October 12, 2020 (00:00:00 UTC).

Registrations received before or after this period will be voided. Sponsor's computer is the official time-keeping device for the contest.

Teams can find registration information at <http://www.ieeextreme.org>

Proctors

Each team must have a proctor to supervise competition activities. Both teams and proctors may work remote this year while participating in the competition.

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

Proctor information (IEEE Member Number) is required during the registration process.

Student Branch Counselors, Mentors and Student Branch Chapter Advisors may be potential Proctors. 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 activity
- Inform students when the competition begins, at the middle of it, when there are 6 hours left and when there is 1 hour left
- Ensure that no one external to the team helps or assists the student participants in resolving the problems in any way
- Assists with team wellness (adequate rest, nutrition and exercise)

Proctors are allowed to manage up to 15 teams. Teams may also enjoy the support of multiple proctors to share responsibilities and take shifts. Teams will assign their primary proctor and add alternates into the registration platform in v-Tools. Assigned proctors are responsible for ensuring that participants do not engage in plagiarism and adhere to the IEEE Code of Conduct.

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.

For more information on venue, see the following section. Teams must be proctored at all times throughout the 24-hour competition. Sponsor reserves the right to allow for remote proctoring in extreme circumstances.

Venue

Although IEEEExtreme is an online competition, a physical location, or online means, must be identified for each team to use during the 24-hour competition.

Should circumstances allow, proctors and teams can participate in the same venue. Venues can be in an IEEE Student Branch office, a college lab or another location on campus. It must be a place that participants can use for the entire 24 hours during 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 team 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](http://www.ieee.org/societies_communities/geo_activities/forms_petitions/forms_petitions_index.html).

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Problems

Problems are developed and judged by expert programmers. All entrants agree and acknowledge that Sponsor is the owner of all problems and any associated code. Entrants further agree that they will not use the problems or any associated code for any reason other than the competition without written permission from Sponsor. The panel of judges is made up of higher grade IEEE members from both academic and industrial backgrounds. Problems will be categorized as easy, moderate, difficult, advanced, and Xtreme to allow students of all experience levels to participate.

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

A demo practice contest community, with sample problems from IEEEExtreme 10.0, 11.0, 12.0 & 13.0 can be found at: <https://csacademy.com/ieeextreme-practice/>.

Problem Submission

Teams should submit their problem solutions electronically using the contest management tool. Instructions on access and utilization of the contest management tool will be provided to teams after registration closes.

The 2020 contest problems will be available the day of the contest.

Scoring Criteria

30 points are awarded for correct answers. 70 extra points can be awarded depending on problem "difficulty". The difficulty of any problem comes from the average points teams scored on it; should many teams solve the same problem, that problem is deemed to be very easy and no additional points will be awarded for that problem. However, if few teams solve a problem the problem will be deemed hard and will be credited with additional points. This scoring schematic makes the competition and your placement within the ranking very dynamic. Sharing a solution with other teams is strictly prohibited and may 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 the problems more quickly end up higher in the standings. 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 problem:

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

Where

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

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:

Problems 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 problem.

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

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 problems compared to the other team.

Total submission time:

Submission Number	Problem Number	Submission Time	$\frac{\text{Sum of correct test cases' weights}}{\text{Sum of all test cases' weights}}$
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 am, UTC	0.70
5	2	5:05 am, UTC	0.60

To calculate the total team submission time for the example in the above table, we consider the best submissions for each problem (both of which were released at 12:05 am, UTC). For problem 3, the best (and only) submission occurred 2 hours into the problem. For problem 2, the best submission occurred 3 hours into the problem. 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 problems would be 5 hours (2 hours plus 3 hours).

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

Notes:

The competition platform may use the term "Task" instead of the term "Problem".

No programming language has a scoring advantage over the others. (Ex: Java, C, Python, PHP, etc. are all equal in terms of scoring). Scores will be impacted only by submission time, 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.

Supported Browsers

The browsers that are supported to run IEEEExtreme 14.0 can be found here:

<https://csacademy.com/about/environment/>

Please consult each browser's website for more information on updates.

Plagiarism Policy:

IEEEExtreme 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.

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.

Notification of Winners and Final Rankings

From the close of the competition through on or about 15 November the IEEEExtreme Technical team will be evaluating code submissions. IEEE reserves the right to disqualify a team that has violated these rules. The official results will be communicated on or about 15 November. Winners and the proctors for their teams will be contacted by IEEE directly.

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 of eligibility and liability/public release as requested by IEEE, that team member may be disqualified, and his or her prize will be forfeited. In the event an entire team fails to sign and return the requested affidavit of eligibility and liability/public release as 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 assign all rights in the selected submissions to IEEE, the winner may be disqualified, and his or her 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 calendar year of the competition.

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.

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 problem in Sponsor's sole discretion.

Prizes for IEEEExtreme 14.0:

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 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.

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 provided 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

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.

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.

Funding Sources

The IEEEExtreme 14.0 Competition is being underwritten by IEEE Membership and Geographic Activities Department.

Corporate Sponsorship opportunities are still available. Please contact ieeextreme@ieee.org for more information.

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 contest 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.

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 14.0 Competition, Member and Geographic Activities, IEEE, 445 Hoes Lane, Piscataway, New Jersey 08854.