



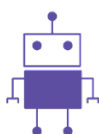
**Western
Engineering
Competition**

Programming Competition

Rulebook

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Programming

The goal of the programming category is to encourage engineering students to produce a piece of industry level software. The teams will use their software development skills, their technical writing abilities, and their project management skills to design a solution to a posed problem. This solution will then be presented to a group of professors (judging panel) for approval. The winning solution will not necessarily be the most technically correct but the one that has the most real-world application and is most thoroughly thought out.

Team Composition

The Programming team will be comprised of a maximum of four (4) competitors.

Topic

The topic will be a real-life problem found in any professional industry which can be solved through the application of programming. The type of industries can include, but are not limited to, finance, health, transportation, manufacturing and construction. Although not completely needed, a team that is formed of students from more than one engineering discipline is advised, as it would help to develop a complete solution.

Resources

Facilities Required

- One presentation room (presentation of problem and team presentations)

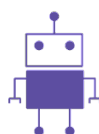
Personnel Required

Judges

A minimum of three (3) judges (and in any excess, an odd number of judges) are required to assess the problem-solving abilities, proposed solution, communication skills and team dynamics of the competitors. Judges in this category should come from a variety of backgrounds including communications, sales and technical or software engineering experience related to the topic.

Competition Lead

The Competition Lead is responsible, along with the VP Competitions, for the design and implementation of the Programming competition. The Competition Lead must



present the design problem at the beginning of the competition and answer any questions raised by competitors. Only the Competition Lead may answer questions during the design period. The Competition Lead will also answer any questions the judges may have during the competition.

Timekeeper

The Official Timekeeper must be responsible for enforcing time limits during the question period, solution development and presentations, as stated in the rules. The following equipment will be made available to all competitors during the competition time period:

Resources Provided

During the design phase

- Internet Connectivity
- Information relevant to the design problem, at the discretion of the Competition Lead

During the presentation

- One (1) Digital projector
- One (1) computer containing the team's presentation file

External Resources Allowed

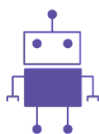
The competitors can bring the following equipment with them:

- Any background research conducted by team members prior to the competition
- Any electronic material stored on CDs, USB keys, disks or other storage devices
- Any textbooks, course notes or other reference material

Software resources

It is expected that the teams participating in this competition have adequate knowledge in choosing the best tools to solve the given problem. WEC will not place restrictions on what languages are to be used for the competition.

Note: Since the use of the Internet and other external resources is permitted in this competition, all information used by competitors must be referenced very carefully. Competitors are not permitted to submit work completed by anyone other than the members of their team. If they decide to recycle their own or someone else's code, it must be clearly cited in the presentation. In addition, the competitors also need to



clearly explain why and where the recycled code was used in their software. The judges hold the right to ask any team member to describe what a section of the code does at any given point during the presentation. If there is any evidence that competitors are submitting plagiarized work or work entirely made by AI systems such as ChatGPT, the entire team will be eliminated from the competition. Volunteers will monitor each team during the design process to deter teams from cheating and to remind them to cite external resources. However, competitors are expected to act in good faith with the spirit of the competition.

Procedure/Timeline

Pre-Competition

At least seven (7) days prior to the competition, the main theme(s) of the competition will be announced to the competitors, judges and public. The Competition Lead will assign each team their designated Team Name for use at the competition, and exact specifications of equipment available to teams during the competition (computers storage devices, available programs, etc.) will also be announced at this time.

Competition

Problem presentation

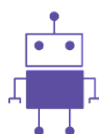
The problem must be presented to all competitors and judges at the beginning of the competition. The Competition lead must provide detailed explanations of what is expected from the competitors, both orally and in writing.

Solution development

Teams will be given seven (7) hours to develop their solutions, produce all required deliverables, and prepare their presentations. All deliverables shall be submitted prior to the end of the provided time.

Solution Presentations

Competitors will have a maximum of five (5) minutes to present their solutions. All team members must be present and participate in the presentation or be penalized by the judges, for an exception to this rule contact the directors. Judges then have a maximum of five (5) minutes to ask questions. Judges can ask a question at any time during the presentation. The clock must be stopped during these interruptions. In order



to ensure that all competitors cease to work on the case solutions once the design time has ended, the competitors cannot include any material in their oral presentation which is not included within their submitted written reports or presentation materials.

Timekeeping

The following rules will be adhered to with respect to timekeeping.

During the design phase

- Time is started when the teams arrive at their respective workstations
- The time remaining in the competition must be announced three (3) hours, one (1) hour, thirty (30) minutes and ten (10) minutes before the deadline

During the presentation

- Time is halted when a judge asks a question during the presentation
- Time is halted when a team member answers a question asked by a judge

Presentation order

- Presentation order shall be determined randomly
- Teams are not allowed to switch places in the presentation order
- Teams may not be in the audience for presentations

Deliverables

For competitors

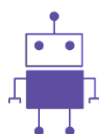
Each team member will electronically be given access to a package outlining the main themes of the competition. It is the competitor's responsibility to ensure that they have received the package.

At the competition briefing, each team will receive: a package describing the problem definition, the design and presentation requirements, the rules, marking scheme and any other information deemed necessary by the Competition Lead.

At the competition briefing, each team will also receive a package outlining the problem definition, design and presentation requirements, rules, marking scheme and any other information deemed necessary by the Competition Lead.

From competitors

Each team is required to submit, electronically, before the end of the design period all deliverables outlined by the problem. This must include the code which will be used to



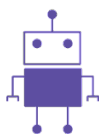
evaluate the team's solution and their presentation. Only the code provided to the Programming Competition Directors will be used for evaluation.

Response to Questions

- Only the Competition Lead or Director may answer questions during the problem presentation and design phases. Volunteers and judges may not answer questions regarding rules and procedures at any time
- During the presentation of the problem, the Competition Lead shall answer orally and write down the answers provided
- During the design phase, only questions related to deliverable content shall be answered. No answers shall be provided in response to questions about the problem that might lead to the development of a new approach, or which might invalidate a solution
- During the design phase, answers to questions shall be provided through discord.

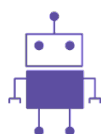
Assessment and Judging

- The panel must have an odd number of judges
- The panel must have at least three (3) judges
- The presentations shall be carried out without an audience
- Feedback forms shall be provided to each team following the announcement of winners but prior to the end of WEC



Judging Matrix

Strategy	Simplicity Ingenuity Ability to achieve desired outcome	/35
Code	Structure Readability Efficiency	/30
Resource Management	Solution is created during the build time Proper citation	/10
Presentation	Design Process Design Justification Design Critique Voice Articulation and Timing Visual Aids Response to questions	/25
Penalties	Plagiarism Plagiarism and/or includes open-source code Documents received after deadline Absent team member (contact director for exceptions) Program cannot compile or run Program cannot respond to user input Presentation above 10 minutes Program does not contain all required components	-50 -50 -50 -25 -25 -25 -10 -10
Total		/100



Rules and Guidelines

1. Each team will get 7 hours to submit the case report.
2. The teams are not allowed to discuss problem statements with other teams.
3. The teams will be provided with internet access. You are allowed to bring your laptops/tablets but not allowed to bring any other materials or notes into the competition.
4. The proposal submitted must be your own original work. Any form of plagiarism will not be tolerated.
5. Any questions and clarifications regarding the competition, rubric, background information, may be addressed to the competition volunteers. You are not allowed to ask volunteers for opinions or feedback on the case study or on your solutions.
6. This competition will abide by all of the rules and regulations set forth by WEC guidelines, please refer to those rulebooks for reference.
7. The report and presentation will be judged based on the rubric provided.
8. The presentation time should strictly be 10 minutes, including the Q&A session.
9. You may not make any changes to the report or presentation after final submission.

