



OWEA Student Design Competition COMPETITION GUIDELINES

INTRODUCTION

The Ohio Water Environment Association (OWEA) Student Design Competition (SDC) is intended to promote “real world” design experience for students interested in pursuing an education and/or career in water and environmental engineering and sciences. Student teams will compete in one of two categories, *wastewater design* (WW) or *environmental design* (ENV). The Wastewater design is intended to include the traditional wastewater modeling, planning, collection and treatment. Example WW design projects including but not limited to, hydraulic profiles, hydraulic capacity design, preliminary sizing of major equipment (aeration basins, clarifiers, chlorine contact chambers, etc.), upgrades to existing systems, population analysis to determine design flow rates, biosolids handling, etc. The Environmental design is intended to cover current contemporary engineering and sciences topics, including but not limited to, water quality, sustainability, water reuse, wetland construction, stormwater, urban runoff, GIS applications etc.

This year student teams will choose from one of the topics listed below and the problem statements will be announced on *January 20, 2023* at the kick-off meeting. **It is mandatory for the students to attend the kick-off meeting.**

1. *Wastewater*
2. *Stormwater*

WORKLOAD

The project should include a problem statement, a development of alternatives and recommended solution. The depth of the effort should be comparable to a preliminary design. A key criterion in the judging of the competition is the manner and level of effort spent in evaluating the alternatives and developing a recommended solution. The scope and extent of the project should be at the level of a junior, senior, or graduate engineering/sciences student in

a design or capstone course. Students are expected to work together as a team to recommend a solution, with little assistance from an advisor and/or professor. After all the entry forms are received, OWEA will notify the student design teams that are selected to attend a kickoff meeting scheduled for January 20, 2023. Students may use appropriate references or resources, with appropriate citations. Students are expected to perform the necessary calculations for the project. This is not intended to be solely a research project or a literature review, but a comprehensive design project or development of solutions to address the problem. Although some initial literature review and/or research will be required, the bulk of the project should incorporate pertinent calculations for the design or solution.

Mentor Expectations

Members of OWEA will provide mentoring support to the teams, BUT it is the team's responsibility to reach out to their assigned mentor via email or phone. Mentors will provide high level guidance only as the teams are expected to do their own research and develop a solution for the problem statement defined in the competition. When contacting mentors, provide information clearly, highlight your questions and make it easy for the mentor to respond. Frequently asked questions (FAQs) are provided at the end of the document.

REQUIREMENTS

- Teams must consist of two but not more than four members.
- Student teams will be judged based on oral presentations of their projects. Each presentation should be 20 minutes followed by a 10-minute question and answer session.
- The presentation *should* be in a Power Point format. The final presentation slides must be submitted electronically to SDC Chair *one* week prior to the competition.
- The winning team of the OWEA Student Design competition will be required to submit an abstract and entry form when due. OWEA will provide guidance to the winning team during this process. The selected team will also need to submit a design notebook complying with WEF competition requirements set forth in the WEF design competition entry guidelines before the deadline.

TIMELINE

December 5, 2022	Entry forms for the 2023 student design competition are due
December 14, 2022	OWEA notifies selected teams
January 20, 2023	Kick-Off meeting

April 14, 2023	Teams shall submit PowerPoint presentations electronically to the SDC Chair
April 21, 2023	Final presentations by the student teams and the winning team will be announced

AWARDS

- The winning team of the OWEA Student Design Competition shall receive a certificate, a letter of appreciation and a monetary award.
- Additionally, the winning team and the honorary mention shall receive an *all-expenses* paid trip to attend the Ohio One Water Technical Conference in August 2023. However, only the winning team shall present their project at the One Water Conference.

QUESTIONS OR COMMENTS

Please review the guidelines and contact the Chair for questions. The Chair and the SDC committee members can be contacted at–

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FREQUENTLY ASKED QUESTIONS

Question: What type of help can my mentor(s) provide to my team?

Answer: Mentors have experience in the industry and have taken on multiple engineering design projects from start to finish. They may or may not be a technical expert in the field you are working on for this project, but regardless of the technical content they do know how projects move from concept to design to construction, and they can share valuable advice for you in this vein. For example, try asking them about:

- Whether or not your proposed solutions are reasonable and constructible
- Whether the scope of work you have set for your project is too broad or too narrow

- What questions/concerns they anticipate that the judges might have (after sharing your presentation with them)

Question: How should I reach out to my mentor(s)?

Answer: Discuss this question with them at your first meeting to find out their preferences and try to accommodate their preferred method(s) of communication. Remember that mentors are volunteers and may not be able to meet or talk at your preferred time(s). The process works best when everyone is flexible and consistent. Also remember that in order to have them provide you with the best advice, you will need to keep your mentor up-to-date. Taking down and sharing progress reports or meeting minutes (with action items for each team member) are a great way to do this while keeping your team accountable to each other at the same time.

Question: Do you need to be an engineering student to participate?

Answer: No. The competition is judged according to the manner and level of effort that the team used in evaluating alternatives and developing the recommended solution.

Question: How much detail is expected for the final presentation?

Answer: Sufficient data must be presented to support the evaluation of alternatives and cost/benefit of the proposed solution. The panel of judges consists of professionals of various backgrounds in the Water Industry. Students need to be prepared to answer difficult questions regarding their project.

Question: Should one member of the team perform the presentation?

Answer: No. Each member of the team should participate in the project presentation. This is an interactive learning experience as well as a competition.

Question: Should calculations be included in the presentation?

Answer: Only if this data is pertinent to support a decision.

Question: Can we seek professional guidance outside of our professors and mentors?

Answer: Yes, only for guidance. Students are expected to perform all phases of the project from the planning and development through the final design of the proposed solution.