

# **WEFTEC® Student Design Competition 2020**

AZ Water Association  
Regional Competition Rules  
January 2020

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## General Competition Information

Colleges and universities in Arizona who have formed AZ Water student chapters are invited to compete in the Second Annual AZ Water Student Design Competition sponsored by the Young Professionals Committee of the AZ Water Association that will be held in April 2020. Teams may include undergraduate and/or graduate students.

Teams will be competing on the problem statement provided by AZ Water. The problem statements will be based on problems relating to actual ongoing wastewater design projects in Arizona.

## Schedule

Teams must complete their projects during the spring semester. Final oral presentations and judging for all team are scheduled for **April 15, 2020**. The table below lists key deadline dates:

	<b>Spring 2020</b>
<b>Final updates to Rules and Problem Statement issued</b>	1/15/2020
<b>Registration Due</b>	1/22/2020
<b>Facility Tour- <b>Tentative</b></b>	1/25/2020
<b>Project plan due</b>	2/18/2020
<b>Final reports and competition entry form due</b>	4/8/2020
<b>Regional Student Design Competition</b>	4/15/2020
<b>National WEFTEC® Competition (New Orleans, LA)</b>	9/21/2020 - 9/25/2020

## Eligibility

- Participating schools must form an AZ Water Student Chapter
- The participating school must be in Arizona
- Teams must meet regional deadlines

Student design teams may consist of a **maximum six (6) students** for all aspects of the competition, including preparation of all documents and the final presentation. Multiple teams from each school may enter the competition. There is no minimum number of students required for entry; however, it is recommended that a team consist of at least four (4) students. Failure to adhere to these eligibility requirements may result in the penalization or disqualification of a team from the competition. AZ Water will have final authority in determining the eligibility of team and assessing penalties.

## **Responsibilities**

### ***Coordinator***

- Coordinate with team advisors
- Coordinate competition
- Answer questions

### ***Advisor (Faculty)***

- Ensure teams follow all competition rules
- Present and explain problem statement
- Guide students to commonly accepted design literature and design standards
- Answer questions, unless a question needs to go to the next level up to advisory team or competition coordinator (communication chain outlined below)
- Participate in project plan and final design reviews
- Ensure teams meet all deadline requirements
- Help students prepare for oral presentations and question and answer period

### ***Advisory Team (Professionals)***

- Guide students to commonly accepted design literature and design standards
- Answer questions, unless a question needs to go to the next level up to competition coordinator (communication chain outlined below)
- Participate in project plan and final design reviews
- Help students prepare for oral presentations and question and answer period

### ***Outside Assistance***

Student Design teams may contact consultant firms, manufacturers, and representatives for information. Teams should allow a two-week period for responses. These entities are not permitted to assist design teams with formation of design alternatives or solutions and are allowed to provide the following assistance:

Tasks Allowed:

- Provide basic cost information for commonly used materials and equipment, such as pipes, valves and concrete

- Provide cost information on specific pieces of equipment that must be purchased from a manufacturer
- Provide feedback on unit process decisions
- Review of deliverables, if requested

Tasks Not Allowed:

- Perform calculations
- Select alternatives
- Develop deliverables

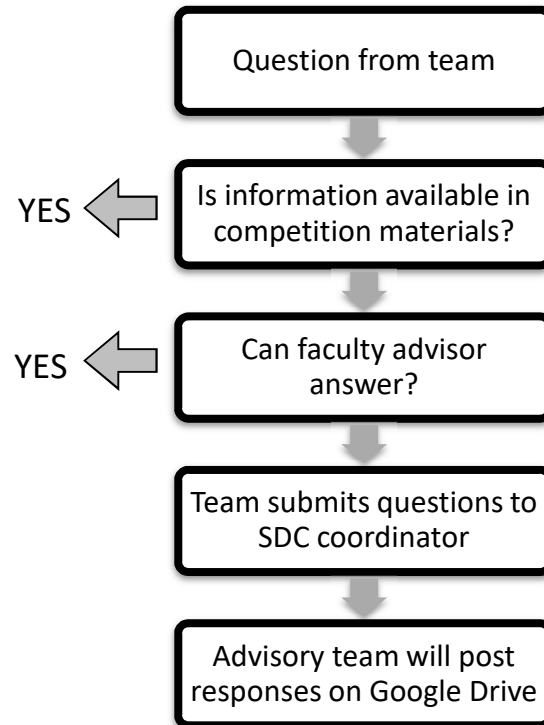
In general, outside entities shall not provide teams with “the answers,” but should provide guidance and the tools necessary to make a decision and develop a recommendation.

Teams must submit references with the final design report, including the names of consulting firms, manufacturers, and representatives that provided assistance.

### ***Communications***

A file sharing site will be available to access competition information. Access instructions for the site will only be granted after a team has submitted the registration form.

In the event that the advisor council is unable to answer questions and information is not available on the file sharing site, student design teams shall submit questions through a RFI form. Teams should allow a one-week period for responses. See flowchart below for communication overview:



## Project Plan Requirements

Project plans must be submitted via email to [yp+studentaffairs@azwater.org](mailto:yp+studentaffairs@azwater.org) and to [nicholas.yonezawa@hdrinc.com](mailto:nicholas.yonezawa@hdrinc.com). Project plans may be a **maximum of 10 pages** (not including a cover page and a table of contents) and should include the items below. Anything beyond 10 pages will not be sent to the judges.

- Project scope
- Schedule/deliverables/milestones
- Team member roles and responsibilities
- Proposed Table of contents for Final Report
- Development of understanding of client expectations and project intentions
- Progress to date
- Proposed Design Criteria (Projections and Recommended effluent use)
- Decision matrix for Process Technology Selection

## Final Submission Requirements

All final submissions must be submitted via email to [yp+studentaffairs@azwater.org](mailto:yp+studentaffairs@azwater.org) and to [nicholas.yonezawa@hdrinc.com](mailto:nicholas.yonezawa@hdrinc.com). (Final submission requirements are from the national competition guidelines)

1. **Entry Form** – See Attachment 1.
2. **Project Description** – Provide a description of the project or program, including the following information:
  - A summary of the project team, including:
    - Each team member’s role in the effort
    - The names of any other individuals that assisted in the effort
  - A discussion of the design solution (not to exceed 20-pages – anything beyond 20 pages will not be sent to the judges). The discussion must cover the salient facts upon which the recommendation is made, give a clear analysis of the evaluation technique, and present a clear recommendation of action. Relevant data should be presented in the discussion in a clear form. All elements shown on the judging form should be addressed.
  - Formatting to include 1-inch margins on all sides; Calibri, Arial, or Times New Roman Font with a minimum 11-point font size.
  - Color diagrams, charts and photographs that reflect the unique features of the project. Each is to be identified with an appropriate descriptive caption. Graphics/photos can be included within the project description and will count toward the 20-page limit, or can be included as supporting documentation in the appendices and will not count towards the 20-page limit.
3. **Supporting Documentation** – Provide drawings, calculations, tables, vendor submittals, cost estimates, and other voluminous documents as appendices.
4. **References/Acknowledgements** – All references and acknowledgements must be included in the final submission.

## Judging

The judge’s panel may be comprised of representatives from the following groups: utilities, engineering consultants, equipment vendors, regulatory authorities and AZ Water Association. See Attachment 2 for the judging score sheet.

## Penalties

Teams may incur penalties as outlined below, with a maximum penalty of 18 points per team:

	<b>Points</b>
Failure to submit project plan on time (3 points per day, 6 maximum)	3
Failure to submit final submission on time (3 points per day, 6 maximum)	3
Exceeding oral presentation time allocation (3 points per minute, 6 maximum)	3

## Competition Conduct

All parties involved in the competition are expected to conduct themselves in a professional manner. If any misconduct is observed or reported, the incident will be investigated to determine if any penalties are warranted. Depending on the level of misconduct, the offending party (ies) may be disqualified from the competition. Examples of misconduct include cheating, lying,

plagiarism, deliberately misrepresenting oneself or the competition, or any other form of unprofessional conduct. AZ Water Association will have final authority in determining misconduct and any associated penalties.

Students making contact with outside parties for purposes of the design competition are required to identify themselves as students and inform the outside party (ies) of the nature of the competition they are participating in.

## **Prizes/Awards**

A grand prize plaque will be presented to the team with the winning score. The winning team will be given the opportunity to send **four (4) team members** to WEFTEC® to compete at the National Student Design Competition.

## ***Winners' Obligations***

- Abide by national guidelines, as outlined by WEF (<http://www.wef.org/membership/students-and-young-professionals2/student-design/>).
- Meet all WEFTEC® deadlines.
- Obtain student WEF membership prior to attending WEFTEC® (to ensure student registration rates at WEFTEC®). The funds for the winners assume student membership rates to attend the conference. If students are not registered as such with WEF, they will be required to pay the difference in registration fees.
- Compete at the National Student Design Competition at WEFTEC®.

## **Resources**

A list of Frequently Asked Questions can be found in Attachment 4. For more information, please use the following links:

- <http://www.weftec.org/home.htm>
- <http://www.wef.org/membership/students-and-young-professionals2/student-design/>

## **Contacts**

**Nick Yonezawa**, Student Design Competition Coordinator  
P: (561) 504-4736 or Email: [nicholas.yonezawa@hdrinc.com](mailto:nicholas.yonezawa@hdrinc.com)

Katherine Dougherty, Student Design Competition Deputy Coordinator  
Email: [katherine.dougherty@kimley-horn.com](mailto:katherine.dougherty@kimley-horn.com)



## **Attachment 1: Entry Forms**

Registration Form for the AZ Water 2020 Student Design Competition

Entry Form for the AZ Water 2020 Student Design Competition

# STUDENT DESIGN COMPETITION REGISTRATION FORM

**Number of students on team:**

**Name of University:**

Address:

City:

State:

Zip:

Phone:

Fax:

**Team Members:**

Name:

Email:

Name:

Email:

Name:

Email:

Name:

Email:

Name:

Email:

Name:

Email:

**Name of Faculty Advisor:**

Email:

Address:

City:

State:

Zip:

Phone:

Fax:

# STUDENT DESIGN COMPETITION ENTRY FORM

**Title of Presentation:**

**Names and Emails of Presenters:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

**Special requests or equipment needed for the presentation:**

## **Attachment 2: Judges Score Sheets**

Note: These score sheets were obtained from the national student design competition guidance document and may be modified as needed to reflect scoring for the national competition.

**Score Sheet – Final Design Report**

Name of University: \_\_\_\_\_

Judge: \_\_\_\_\_

**Technical - 70 pts**

- 1. Introduction, statement of problem, background information (5 pts) ..... \_\_\_\_\_
  - 2. Continuity, logical sequence of steps to solution (10 pts) ..... \_\_\_\_\_
  - 3. Conclusion, definite based on logical steps to solution (10 pts) ..... \_\_\_\_\_
  - 4. Solution feasible & logical for problem statement (15 pts)..... \_\_\_\_\_
  - 5. Creativity, innovative approach, applicability (5 pts) ..... \_\_\_\_\_
  - 6. Knowledge of subject & content (10 pts)..... \_\_\_\_\_
  - 7. Economic analysis, feasibility, presentation of economics (10 pts) ..... \_\_\_\_\_
  - 8. Bibliography, credit to resources & help (5 pts)..... \_\_\_\_\_
- TOTAL (70 pts)..... \_\_\_\_\_**

**Notebook Presentation - 30 pts**

- 1. Visual aids (graphs, supporting info, pictures, etc.), presented clearly (10 pts) ..... \_\_\_\_\_
  - 2. Grammar, spelling & technical writing (10 pts)..... \_\_\_\_\_
  - 3. Formatting, logical organization of report, table of contents (10 pts)..... \_\_\_\_\_
- TOTAL (30 pts)..... \_\_\_\_\_**

**GRAND TOTAL (100 pts)..... \_\_\_\_\_**

**COMMENTS:**

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**Score Sheet – Presentation**

Name of University: \_\_\_\_\_

Judge: \_\_\_\_\_

**Content - 45 pts**

- 1. Technical subject matter relevant to design (20 pts) ..... \_\_\_\_\_
  - 2. Personal contribution, library research, innovative project (10 pts)..... \_\_\_\_\_
  - 3. Knowledge of subject & content (15 pts)..... \_\_\_\_\_
- TOTAL (45 pts).....** \_\_\_\_\_

**Organization - 20 pts**

- 1. Introduction, background, objectives, presentation outline (5 pts)..... \_\_\_\_\_
  - 2. Continuity, essential facts developed in a logical sequence (10 pts) ..... \_\_\_\_\_
  - 3. Conclusion, definite & based on facts (5 pts)..... \_\_\_\_\_
- TOTAL (20 pts).....** \_\_\_\_\_

**Delivery & Effectiveness - 25 pts**

- 1. Vocal delivery, conversation vs. memorized, volume, pronunciation, timing (10 pts). \_\_\_\_\_
  - 2. Body Language, eye contact with audience, distracting mannerisms (5 pts) ..... \_\_\_\_\_
  - 3. Visual aids legibility & effectiveness (10 pts) ..... \_\_\_\_\_
- TOTAL (20 pts).....** \_\_\_\_\_

**Discussion - 10 pts**

- 1. Questions & Answers, Clarification & spontaneous (10 pts) ..... \_\_\_\_\_

**GRAND TOTAL (100 pts)...** \_\_\_\_\_

**COMMENTS:**

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## Attachment 3: Frequently Asked Questions

### PROBLEM STATEMENTS

1. Will the competition involve cost estimation?

*Yes. Since the purpose of the competition is to expose student to real-world engineering problems, cost estimation is a critical part of the competition.*

### COMPETITION RULES

2. How much involvement is the design advisor council allowed to contribute?

*The advisor council will be allowed to be involved as follows:*

- *Review design calculations, cost estimate calculations, and deliverables.*
- *Educate students on unit operations that they are not familiar with.*
- *Provide guidance on alternatives selection.*

3. Who will determine what the deliverables will be?

*The Student Design Competition Committee will determine the nature of the deliverables in coordination with the national competition guidelines.*

4. If graduate students participate, how will this be handled? Graduate students competing against undergraduate students may skew the competition.

*Graduate students are allowed to compete in the national competition. The inclusion of graduate students on a team has not historically resulted in an unfair advantage over other teams.*

### WINNING TEAM OBLIGATIONS

5. What happens if students from the winning team graduate and accept job offers before WEFTEC®?

*This is not expected to be an issue. Participation at WEFTEC® is generally encouraged by most employers.*