

2006 G.B. Gunlogson Student Environmental Design Competition
Fountain Wars

The following is the final version of the score sheets that will be used for the Fountain Wars contest.

The points are allocated as follows:

Written Report	100 points
Oral Presentation	50 points
Construction	50 points
Tennis Ball Launch	75 points
Obstacle Course	75 points
Aesthetic Display	150 points
Total	500 points

Note: The score sheets for the Tennis Ball Launch, Obstacle Course, and Aesthetic Display all include ten “Adherence to Design” points. These points are considered construction points, but will be assessed by the technical task and aesthetic judges.

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WRITTEN REPORT SCORE SHEET

The teams were required to include the following in their written report:

1. Narrative of design objectives, process and results.
2. A complete parts list with the price of each purchased component.
3. A piping design including piping layout, dimensions and construction details.
4. Design drawings and fabrication technique of any custom parts used.
5. Calculations of flow rates, pipe friction and expected technical test performance.
6. A statement of the aesthetic philosophy and objectives.

With that in mind, please score this team in the following categories. Please feel free to list additional comments that will help the students improve their written communication skills.

University Name _____

	Points Possible	Points Awarded
Narrative	20	+
Comments:		
Parts List	5	+
Comments:		
Design	30	+
Comments:		
Flow Calculations	25	+
Comments:		
Aesthetic Statement	10	+
Comments:		
Style and Conciseness	10	+
Comments:		
Penalty for Late Entry	10 X __ weeks	-
Total	100 Possible	

Please indicate if the design should be considered for any of the Special Awards

<input type="checkbox"/> Economy of Design	<input type="checkbox"/> Innovative Design	<input type="checkbox"/> Best Use of Bio-Materials
<input type="checkbox"/> Most Attractive	<input type="checkbox"/> Best Use of Electronics	<input type="checkbox"/> Judges Special Award

Justification: _____

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ORAL PRESENTATION SCORE SHEET

The following instructions were given to the teams regarding the oral presentation.

1. Presentations will be geared toward promotion of the design and should contain enough information to enable the audience to be familiar with the entry.
2. With the exception of students participating in a conflicting ASAE sponsored event, all team members attending the meeting must be present and at least two of the team members must speak.
3. A strict **ten minute** time limit will apply.
4. Questions will be allowed at the end of the presentation from judges only.

With that in mind, please score this team in the following categories. Please feel free to list additional comments that will help the students improve their presentation skills.

University Name _____

	Points Possible	Points Awarded
Content	20	+
Comments:		
Graphics	20	+
Comments:		
Appearance & Clarity	10	+
Comments:		
TOTAL TIME: _____ minutes		
Over time penalty	10 X _____ minutes	-
Only one team member speaking penalty	10	-
Missing other presentations penalty	5 X _____ teams	-
Total	50 Possible	

Please indicate if the design should be considered for any of the Special Awards		
<input type="checkbox"/> Economy of Design	<input type="checkbox"/> Innovative Design	<input type="checkbox"/> Best Use of Bio-Materials
<input type="checkbox"/> Most Attractive	<input type="checkbox"/> Best Use of Electronics	<input type="checkbox"/> Judges Special Award
Justification: _____		

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INSPECTION SHEET

University Name: _____

- Teams will supply their own nozzles, fittings, valves, controllers, tennis balls, aesthetic components, etc.
- Teams must also supply their own **UL listed ground fault interrupter (GFI)**. It must be wired so the supply feeds directly into it.
- Teams may bring 2' of flexible hose or other material for water to be pumped through.
- Teams may bring rigid PVC pipe in addition to the pipe that is provided.
- Only rigid PVC pipe and the additional 2' of material may be used to convey pressurized water.
- Teams may not use additional pumps.
- All materials provided by the team including, parts, equipment and tools must fit within four (4) cases.
- Each case must have the sum of its linear dimensions (length + height + width) less than 62 inches and weigh less than 20 kg (44 lb), including the case and all packing.
- Materials not allowed in airline checked bags are prohibited.
 - Restricted articles include, but are not limited to, acids, explosives, flammables, oxidizers, corrosives, compressed gases, and poisons.
 - PVC glue will be provided and should not be brought to the contest.
- Teams traveling by auto must also adhere to these requirements with their materials packed into four cases.
- Live animals are prohibited.
- Power tools and equipment are prohibited with the exception of:
 - Battery powered drills and drivers,
 - Sensors, lighting, solenoids, limited motion actuators, and
 - Computers and controllers.
- Electric saws and any tool or device using an AC motor are specifically prohibited.
- **Any 110 V equipment must be furnished with a UL listed ground fault interrupter (GFI), and be in good condition so it does not pose a shock hazard.**

I certify this team's equipment meets the rules and regulations and is eligible to proceed to the construction area.

_____ Inspector (printed)

_____ (signed)

- If a team uses compressed air for any reason, any portion of the fountain that contains compressed air must be rated and safe for that application. **Note: PVC is not rated for compressed gasses.**
- All electronic controls (valves, actuators, etc) in or near the pool may not exceed 24V. All wires must be neatly bundled and routed to minimize the potential for tripping.
- All 110 volts devices including computer supply transformers must be positioned well away from the pool and kept dry by a suitable weather tight enclosure. The enclosures must be positioned such that they may not accidentally be dragged or dropped in the pool. 110 Volt devices may not be powered at any time when their enclosures are open.
- The 110 volt service line that is supplied on site may not be connected or positioned near the pool until the end of the construction period and only after the signed approval of the safety judge.

I certify this team's design and area meet the rules and regulations and are eligible for their 110 V power

_____ Safety Judge

_____ (signed)

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CONSTRUCTION SCORE SHEET

University Name _____

	Points Possible	Points Awarded
Site Conduct	10	+
Comments:		
Fabrications Skill	10	+
Comments:		
Penalty for unsafe or hazardous behavior "Any unsafe or hazardous behavior will result in a warning from the judges. A second similar offense will result in a penalty." Comments:	Up to 20 points	-
Penalty for expanding building area "All materials, parts, and equipment must be kept within specified building area"	Up to 10 points	-
Penalty for exceeding 90 minute building time limit "Time ends when the building area has been cleaned up and all team members have moved outside the building area"	5 X ____ minutes	-
Bonus for use of bio-matter "Bio-matter may be used as decoration and/or as an integral part of the apparatus, with the latter given the higher credit in judging."	Up to 20 points	+
Total	20 Possible	

Please indicate if the design should be considered for any of the Special Awards

- | | | |
|--|--|--|
| <input type="checkbox"/> Economy of Design | <input type="checkbox"/> Innovative Design | <input type="checkbox"/> Best Use of Bio-Materials |
| <input type="checkbox"/> Most Attractive | <input type="checkbox"/> Best Use of Electronics | <input type="checkbox"/> Judges Special Award |

Justification: _____

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TECHNICAL TASK SCORE SHEET

TENNIS BALL LAUNCH

- Teams will launch tennis balls at a flat, circular target placed on the ground 39' away from the edge of the team's pool.
 - The target will be six inches in diameter.
- To reach the target the ball must clear a regulation tennis net placed 19' 6" from the edge of the pool.
 - Balls hitting the net but not clearing it will be given a distance of 19.5'.
- Balls hitting the target with first impact will be given a score of 25 points.
- Teams will be given the opportunity to launch four balls, but the final score will be obtained by adding together scores from the team's best three launches.
- Only energy provided by the pump can be used to launch the tennis balls.
 - No energy can be stored in the system between launches.
- Teams will be given a total of fifteen minutes to launch up to four balls.
 - Teams can elect to not launch a fourth ball if they are satisfied with their first three launches.
- The tennis balls will be covered with a marker substance (most likely a colored chalk powder) prior to being given to the teams. Thus, teams should avoid allowing the balls to become wet.

University Name _____

	Points Possible	Points Awarded
"Each ball a team launches will be worth a maximum of twenty five points, and score will be decreased exponentially according to the distance from the point of ball impact to the target using the following formula. $Score = 25e^{-0.118*d}$ d = distance in feet of first impact to the target Teams will be given the opportunity to launch four balls, but the final score will be obtained by adding together scores from the team's best three launches."		
d₁ = _____ feet and _____ inches	25	+
d₂ = _____ feet and _____ inches	25	+
d₃ = _____ feet and _____ inches	25	+
d₄ = _____ feet and _____ inches	25 (if needed)	+
Adherence to Design – Tennis Ball Launch	10	+
Comments:		
Penalty for exceeding 15 minutes TOTAL TIME: _____ min _____ sec "Teams choosing to exceed the fifteen minute time frame will be penalized one point for every five additional seconds required to complete their launches."	Up to 75	-
Penalty for modifying fountain "Only minor changes, such as aiming or realigning launch apparatus, can be made to the fountain during this time period."	Up to 20 points per offense	-
Penalty for adding water	10 X _____ gallons	-
Penalty for not assisting judges	Up to 20 points	-
Total	85 Possible	

Please indicate if the design should be considered for any of the Special Awards

- | | | |
|--|--|--|
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| <input type="checkbox"/> Most Attractive | <input type="checkbox"/> Best Use of Electronics | <input type="checkbox"/> Judges Special Award |

Justification: _____

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TECHNICAL TASK SCORE SHEET
OBSTICAL COURSE

- The targets must be completed in order within 2 minutes.
- The first task is to roll a 2 liter bottle up an inclined plane.
 - Obstacle is complete when the bottle has rolled the complete 2'.
- The second task will be to raise a rose using a floating device and a 4inch diameter column of water
 - Obstacle is complete when the base of the rose extends above the top of the 4" Tee.
- The final obstacle will be to knock over 6 empty, 12 oz, aluminum cans.
 - Obstacle is complete when all cans are no longer standing upright and no cans are remaining in the original footprint of the group of cans.
- Time for each team will begin once the pump is started and end at two minutes or when all three obstacles are complete.
- Manual operation of valves and aiming of nozzles is allowed, however all team members must remain on the opposite side of the pool as the targets.
- Team members will be penalized for not remaining behind the pool.

University Name _____

	Points Possible	Points Awarded
Obstacle was completed?		
Two liter bottle	___ YES	___ NO
Rose Float	___ YES	___ NO
Can Pyramid	___ YES	___ NO
Time required: _____ Minutes and _____ Seconds		
Time begins when pump is started . Time ends when team requests or upon reaching the 2 minute maximum .		
If 3 obstacles are completed	$Score = 75 * \frac{Winner's\ Time}{Time}$	75 +
If 2 obstacles are completed	$Score = 75 * \frac{Winner's\ Time}{180\ sec}$	
If 1 obstacle are completed	$Score = 75 * \frac{Winner's\ Time}{360sec}$	
Adherence to Design – Obstacle Course	10	+
Comments:		
Penalty for modifying fountain "Teams are not allowed to alter fountain during testing other than to manually set valves."	Up to 20 points	-
Penalty for adding water	5 X ___ gallons	-
Penalty for not assisting judges	Up to 20 points	-
Penalty for team members in front of pool	Up to 20 points	-
Total	85 Possible	

Please indicate if the design should be considered for any of the Special Awards

- | | | |
|--|--|--|
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AESTHETIC DISPLAY SCORE SHEET

The aesthetic display judging is very subjective. Please give each university points based on theme, creativity, unique visual effects, lighting and sound, etc. Also, penalize teams whose display does not start within 30 seconds of the judges' order, whose aesthetic display is not completed within 90 seconds of the start, and/or does not use the provided pump.

Adherence to Design – Aesthetics Display	10	+
Comments:		
Theme	30	+
Comments:		
Creativity	30	+
Comments:		
Visual Effects	30	+
Comments:		
Lighting and Sound	30	+
Comments:		
Judge's Discretion	30	+
Comments:		
Penalty for timing "Display must begin within 30 seconds of judge's request and end within 90 seconds of beginning."	1 X ___seconds	–
Bonus for use of control system	Up to 20 points	+
Total	160 Possible	

Please indicate if the design should be considered for any of the Special Awards		
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<input type="checkbox"/> Most Attractive	<input type="checkbox"/> Best Use of Electronics	<input type="checkbox"/> Judges Special Award
Justification: _____		
