Student Professionals Design Conference Proposal

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Tech Club
10/28/2010
The purpose of our event is to host a national engineering conference on campus. The geographical area of institutions is covered by American Society of Mechanical Engineers (ASME) “District D” this area is comprised of Alaska, Alberta, British Colombia, Washington, Idaho, Montana, Oregon, Northern California, and Hawaii. In all a total, approximately 160 colleges may be involved in this event. It is a great honor for a school of our size to hold this large of an event. It is for this reason that we are asking to help with the initial financial burden. Previous event materials and a current description of the event are attached.

The initial budget we have generated has grown to an exponential size compared to our original understanding. The attached budget is still in its rough stages primarily due to the lack of all costs and information at this given time. In years past the same criteria has been covered with many of the same events from year to year. This year we will be experimenting with the addition of up to 3 new or alternative events. This suggestion of unknown has both presented an additional challenge and at the same time produced a broader range for our campus to really be a pivotal place for this year’s event. Due to the potentially larger size of content it has been established that more help from our professional society will be made to us. An offer to match all funds raised from the college will be matched and potentially more. Due to the unknown factors of the new events it is still within the planning stage for the amount of money to be needed.

Since the beginning of the quarter we have achieved leaps and bounds from last spring, when the event was planned to be hosted by us. The majority of the vendors or contacts for this event did not have the information available till this fall. Now being the end of many companies’ fiscal years, it is becoming a little clearer on the fees and plans. We are continuously working on this event and it is progressively coming into focus. On a daily basis we are making connections campus wide and in our desired field of industry for financial support for this endeavor. The plan is to pull revenues from many sources rather than from a few individual sources. This both keeps the financial burden to a minimum and also spreads the interest and participation for an event that will be seen by our entire country.

Attached is a list of what our club has done in the previous year. The Tech Club has been an established club for many years but due to its up and down activity, in previous years, it has caused the lapse in funding from ASEWU for the current and previous years. We are currently in the process to reestablish a yearly budget to help with many activities like the one being presented. We thank you for your support and as students of this institution our department and school will always be the priority in all our endeavors.
Potential Contributions

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<thead>
<tr>
<th>Organization</th>
<th>Amount</th>
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<tr>
<td>Dean of Health and Sciences</td>
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<tr>
<td>American Society of Mechanical Engineers</td>
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<td>American Society of Mechanical Engineers Senior Section</td>
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<td><strong>Total</strong></td>
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Rough Budget

**Food:**

- Friday Dinner: $20/person
- Saturday Morning: $10/person
- Saturday Lunch: $9/person
- Saturday Dinner: ~$25/person

**Estimated Food Total**: ~$60x250 persons = $15,000.00

**Shirts:**

- Participants: $1,500.00
- Staff: $500.00

**Estimated Shirt Total**: $2,000.00

**Materials:**

- Track: $750.00
- Pamphlets: $300.00
- Rules and Guidelines: $100.00
- Awards & Certificates: $250.00
- Audio & Visual: $1,000.00

**Estimated Print Total**: $2,400.00

**Estimated Total**: $19,400.00
Expense Summaries

The attached Budget is in its rough phase. We estimate a total of between 150 to 250 persons at this event so the numbers reflect the higher of the trend. We have begun to contact many of the vendors that will be providing our products for this event. The majority of our business contacts needed to wait till the end of the fiscal year to potentially write us into the coming year expenditures. The prices provided for much of the content is at a great safety value. Our expected budget should be somewhere between $10,000 - $15,000.

Potential food for the majority of the event will be provided directly from campus which allows us to work out lower prices and contribute directly back to campus. The Friday Dinner will be held off location at a rented venue, this is the most potentially expensive and yet important meal of the event. During this dinner the awards ceremony will take place as well as any potential business or networking for students and professionals.

Printing prices have yet to be fully calculated due to the process of producing a rough draft for much of our media. If at all possible we would like to keep this process on campus as well; we have an industrious print shop on campus. With the waste of much of the printed materials at events of this nature our plan is to keep the paper products to a minimum. The use of electronic media will be the preferred means of mass communication prior to attendance on campus.

The shirts for the event will fall within two general categories; Participants and Staff. The participants’ shirts will be simplistic t shirt design with printed materials on both front and back. Front designs are being finalized and potential sponsors for the back are still being populated. The staffs’ shirts will be along the same design parameters with smaller logo in stylish fashion set in typical badge location. The style of these shirts will either be long sleeve t shirts or polo fashion, yet to be determined. We feel as though the shirts need to convey the influence that EWU campus will portray at this event.
Potential Contributors

The process of pulling together an event of this magnitude has been a daunting task. We have met with many potential investors in this event, many of which have given support in the past and have vocalized their anticipation for helping with this as well. The conservative estimated total we hope to receive is roughly around $15,000. This for all intents and purposes should cover the majority of the expenses that this event will need. The goal for us is to have a multitude of donors to spread the overall costs amongst many; this will keep the individual donations as low as possible. The amount of money we raise at the campus level will potentially be matched by ASME, thus the undetermined amount.

We have begun the process of establishing support with many of the professional firms that pertain to our field of interest. This has been done both through the connections we have established through other activities and the organizations that our club was founded for. Many of the investors are just now settling budgets for the upcoming fiscal year and are certain that a portion of the surplus revenue can be donated for this event.

We hope to attain the maximum amount possible from the ASEWU for this event. It is believed by all that this event will bring national attention to our campus and portray the quality of our educational value.
2011 ASME Student Design Competition
H2Go: The Untapped Energy Source?

Green energy is being used more each day. Wind turbines, wave turbines, hydroelectric dams, geothermal heating/cooling, biofuels and solar panels are all being constantly improved to be more efficient and environmentally friendly. Roughly 7% of the world’s energy is currently generated from these sources [http://www.eia.doe.gov/fuelrenewable.html]. However, there is a green source of energy that has not yet been fully tapped -rain. The potential energy of 1 inch of rainfall on the average single-story house, if captured at the roof height provides approximately 120 kJ of energy, even more if the rain can be captured in motion. Devices to convert and store this energy could be created and an untapped and readily available energy source utilized. In addition, the water itself could be stored for a variety of everyday uses.

Your challenge is to design a scaled, proof of concept prototype for rain energy conversion. Your prototype device will propel a model car as far as possible in a straight line by converting the potential energy of one liter of water at one meter height. All water must be contained within the device and a penalty will be assessed for any water spilled.

Course Description

At the competition, a funnel will be provided (1.5 L minimum volume within the funnel body) with a 1.5 cm +/- 0.25 cm diameter opening suspended with the opening at a height of 1 m +/- 1 cm. The unobstructed area beneath the funnel will be a minimum of 0.5 m on all sides of the funnel opening.

The competition surface will be the available flooring at the contest venue. This surface may be indoor/outdoor carpeting, industrial/commercial carpeting or hard flooring. Contestants must be prepared to compete on any of the above surfaces, as the contest venue’s flooring will not be specified prior to the competition.

Device Requirements

1. The only power source to be used is the 1 L of water. If any stored energy is used in the device besides the elevated water, teams must prove that the amount of additional stored energy after the device operates is equal to or greater than the initial stored energy.
2. The device must have an easily removable and drainable water storage container capable of storing at least 1.1 L of water.
3. The device must fit, fully assembled and ready to operate, within a box measuring, on the inside, 370 x 165 x 165 mm. Any expansion or extension must be done by the device itself during the competition run.
4. Each team will provide their own car which must:
   1. Have a mass of 10 - 90 gram
2. Be 25 mm to 45 mm wide
3. Be 65 mm to 100 mm long
4. Not be used as a projectile

**Contest Operation**

At the start signal a team member will pour the 1 L of water into the funnel. No one may touch the device other than to pour the water. The entire liter of water must be poured continuously in no more than 20 seconds.

At the end of the run, the water will be measured to ensure no loss.

Distance traveled will be measured using a string. The straight line distance from the initial location of the model car to the final position will be recorded. A single point on the car will be chosen for measuring and used at initial and final locations.

Each team will be given two runs. The second run will begin immediately after measurements have been made from the first. The team may manually reset their device between runs.

**Scoring and Penalties**

The winning device will have the highest score $S$ where:

$$S = \sum_{i=1}^{2}\left(D_i - 100W_i\right)$$

$D = $ Distance car traveled in mm

$W = $ Water spilled over 25 mL in mL

$i = $ run number

Any damage to the course will result in an immediate disqualification.

Any device not meeting the device requirements will be immediately disqualified.
For illustration only. Pictures do not endorse any particular component, design, or contest-qualification.

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1.0 Radio-Controlled Baja Scope

The Radio-Controlled Baja Car Contest of North American-Pacific District D, ASME International (American Society of Mechanical Engineers), is a competitive event where teams of Mechanical Engineering students demonstrate their design, manufacturing and presentation skills. The student teams design, manufacture, describe, and race relatively inexpensive radio-controlled vehicles on a variety of challenging race-courses at the District’s Student Professional-Development Conference (“SPDC”).

For the purposes of this competition, a car will be defined as a self-propelled radio-controlled electric land vehicle running on three or four or more wheels not in a straight line, or on tank-treads. The vehicle must comply with the regulations contained within Section 4.0 of this document.

2.0 Definitions

Student Professional Development Conference (SPDC)
An annual ASME District level conference where engineering students participate in various activities intended to introduce students to the true ASME, an engineering career, develop networking opportunities and create a forum for technology transfer and leadership training.

Remotely Operated Auto Racers (ROAR)
ROAR is the official U.S./Canadian sanctioning body for R/C car and truck competition. National non-profit corporation organized to promote the sport of radio controlled model car racing. Read more about ROAR at RoarRacing.com

Differential: a drive train gear assembly managing the motions of two collinear shafts or axles (as those of the rear wheels of an automobile) and permitting one shaft to revolve faster than the other.

3.0 Responsibilities

The following people / organizations are responsible to support the RC Baja Competition as described below.

3.1 Competition Teams
Each team wishing to compete in the RC Baja Car Contest must advise ASME District Leadership once the announcement has been made as to which Student Section will be hosting the event and approximately when the event will occur. District leadership will provide a Public Registration Web Site for SPDC events and competitions.

Competition teams must be comprised entirely by undergraduate students. There is no limit on the number of teams that may enter the contest nor is there a limit on the number of teams from any given school that may enter. Team-member eligibility shall be the same as for the Old Guard Oral Presentation Competition and entering the RC Baja Car Contest does not exclude the team-members from entering any of the Old Guard Competitions.

Each team is responsible to produce a remote controlled vehicle in accordance with these regulations. Each team is encouraged to bring sufficient spare parts and supporting equipment needed to complete the Contest Events outlined herein.

The winning team will be awarded the District Traveling Trophy. The winning team will be responsible to maintain the trophy in a location of their choosing and return the trophy for the following year SPDC competition.

3.2 Host Student Section

3.2.1 Scheduling

Once chosen by District Leadership, the Host Student Section is responsible for managing the RC Baja competition event, with the overall approach subject to the general approval of District Leadership.

The Host Student Section shall schedule this Event so as not to distract or divert people from attending other key SPDC competitions.

3.2.2 Reservation of Facilities and Equipment

The Host Student Section is responsible for reserving the necessary facilities to effectively host the RC Baja Car Contest. These typically include facilities for the Oral Presentations with ordinary common AV equipment and good visibility for all, indoor or outdoor facilities for the Performance Events, vehicle repair area’s, and Safety and Emergency Response Procedures per Host venue practices.

It is traditional (but at the option of the Host Student Section) that at least four bona-fide entries are required in order for the Host Student Section to commit resources to building a track and staging event; therefore, early pre-registrations are encouraged.

3.2.3 Assignment of Personnel

The Host Student Section is responsible to provide event volunteers necessary to support the RC Baja Car Contest, including personnel and equipment (such as timekeepers and stopwatches) to for each of the Oral Presentations and Performance Events.

The Host Student Section shall make arrangements and assignments for all Score compilations, calculations, and totaling, and provide Scores to the District Leader for use at the Awards Ceremony.

3.2.4 Master of Ceremonies

The Host Student Section is responsible to provide a Master of Ceremonies to support the RC Baja Car Contest. The MC should be in attendance throughout the contest, familiar with the campus, contest rules, competition courses and venues, and event staff and volunteers.
3.2.5 Course Set Up and Rules

The Host Student Section is responsible to establish Acceleration, Slalom and Baja Competition courses in accordance with these rules.

The host Student Section shall provide a maintenance / repair area for vehicles that require attention throughout the Performance Events. The maintenance / repair area shall be well lit, have electrical outlets, and protected from the elements to the best extent possible.

3.3 Judges

Three judges are required for the contest. The Host Student Section and District Leadership should work jointly to recruit and select the contest Judges. Frequently, nearby Senior Section members are recruited for SPDC event judging by the District Leadership. Judges may be subject to approval by District Leadership.

It is recommended that at least two be current ASME members or supporters and at least one RC hobbyist or enthusiast. Depending upon circumstances, judges may be reimbursed through District Leadership for lodging and travel expenses in a manner compliant with ASME Policy.

3.3.1 Issue Resolution

Judges are responsible to know and fully understand these Rules. Judges are responsible to resolve issues that may arise during the event. Mid-year questions shall be directed to District Leadership.

3.3.2 Lead Judge

One Judge will be deemed “Lead Judge” for the Contest. The lead judge is responsible to collect all judges scoring sheets, compile the times, tally scores, and determine the event winners. The lead judge is responsible to report to the event MC and/or district leadership the results of the competition once results are finalized.

3.3.3 Score Oral Presentations

Judges are responsible to fill in each of the three judging forms for each team Presentation. Judges are encouraged to briefly discuss the presentations with each other but should be impartial and unbiased in their scoring. It is fully intended that the Presentation scores will range from almost zero to almost 100 to provide good separation, since there will be no ‘mathematical scaling’ as is done in the Performance events.

3.4 District Leadership

District Leadership is responsible for administering and publishing the RC Baja Car Contest Rules.

Contest questions arising mid-year and between-contests shall be directed to current District Leadership.

During the SPDC contest, questions shall be directed the Judges. They may choose to consult with District Leadership.

3.4.1 Distribution of Prizes and Funds

District Leadership is responsible to establish and award prizes. Award Presentations may be made by the Judges or the RC Baja Car Contest MC or SPDC Coordinator as seems most appropriate.
3.4.2 Continuous Improvement

Post-event suggestions for contest-improvements may be directed to District Leadership or the District person designated to administer the Contest. Participants may be consulted for feedback after the Event.

4.0 Regulations – Vehicle Design Requirements

4.1 Vehicle Restrictions:

The purpose of these restrictions is to ensure an event competition of student-produced cars, all of which use common, easily available drive trains; rather than allowing expensive, off-the-shelf "professional-sports" entries.

The car must be conceived, designed, and fabricated by students without any direct involvement from professional engineers, automotive engineers, or related professionals. The student competition team may use any literature or knowledge related to the design of the car. The students may use information from professionals or from professors as long as the information is received in a discussion of alternatives with their pro's and con's. Professionals may not make decisions of design or drawings, or fabricate parts for the team except as needed by shop rules and safety considerations.

4.2 Mandatory Components:

Radio-controlled car parts which you must use, as specified here, without alterations. You must use the motor and the battery pack as specified below; these are the only sources of power that can be used for propulsion:

a) **Propulsion Motor**: One per vehicle. Propulsion motor may perform additional functions, and additional motors may be carried on the vehicle for other purposes, but only one motor may propel the vehicle. Any motor which conforms to current-vintage ROAR brushed or brushless specifications and manufacture is legal.
   ROAR” motors from previous-years’ vintages are also legal. If ROAR identification doesn't show on the motor, bring the box or literature.

b) **Propulsion Battery Pack**: One per vehicle. The propulsion battery-pack may perform additional functions, and additional batteries of other types may be carried on the vehicle for other purposes, but only one battery-pack may propel the vehicle. Propulsion battery-pack is defined as: any 7.2 volt battery-pack intended for RC use, any milliamp-hour rating. The vehicle’s batteries may be of any chemistry except lithium-polymer or other possibly-flammable type. Batteries may be un-wrapped and wired separately but not altered internally; bring the original case or wrapper to show type and classification. Teams may bring and swap-out more than one battery-pack to minimize “re-charging” downtime. Battery must be securely mounted to vehicle.

4.3 Purchased or Custom Made Components, Make or Buy, It's your choice: Commercially-manufactured car parts which you may select and purchase, subject to these limitations; you may also make any of these items:

a) Transmitter, receiver, servo's: Your choice, make or buy, with proper Channel.

b) Speed control: Any available RC style – e.g. mechanical, resistor, or electronic – is okay. Home-made controls can be of any common RC style. Separate dedicated batteries just for your controls are acceptable, but they may not help propel the vehicle.
c) Wheels, shocks, tank-treads, springs, hubs and spindles. Tires and traction devices that would leave marks on the venue's floors will not be allowed.
d) Multiple servo's are okay.
e) Store-bought universal joints are okay.
f) Nuts, bolts, shafting, ordinary hardware and machine components; transistor and chip components.
g) Differentials made by the team from pre-existing separate components, or "toy-kit" (e,g: Erector Set™, Lego™) differentials, ARE acceptable. Differentials sold or intended for radio-controlled vehicles are NOT acceptable. You must describe the origin of your differential unit.
h) Non-functional ornaments. Body, if used, shall not interfere with inspection of car components.

"YOU MAKE IT" = the rest of the car.

4.4 Repeat Entries

If a car, or a substantial portion of it, has been entered in a previous year’s Contest, the following rules shall apply:
a) During the main Presentation, the presenters shall identify the "pre-existing" and the "new" elements of the entry, fully and accurately. Full Presentation points can be earned for this type of presentation. "Presentation" points depend upon the speakers, not the car, so, full-score points can be earned in this event.
b) For scoring for "Design-and-Creativity" and for "Manufacturing Skills," points will be earned thus: Up-to-full points can be earned for new elements of the entry; proportionally fewer points are earned for improvements to pre-existing elements; no points are earned for fully pre-existing elements. In short, "full points" can only be earned once, and not again in future contests.
c) Repeat-entries may compete in the "Performance" Events without penalty. A pre-existing "hot" design has the right to compete against anything new, which was created to try to beat it.

4.5 Transmitter / Controller Requirements

For non-interference during the Competition, transmitter frequencies must be unique and at least two Channel numbers apart. Request approval of your desired Channel with the Host School via e-mail or equivalent, and request that confirmation be returned. Channels will be allotted on a first-requested first-accepted basis by time of correspondence, so do this early.

Drivers and Teams required to use their assigned-frequency.

Before set-up and competition, the Host Student Section will examine the transmitter frequencies to verify that they are as pre-registered or at least unique and properly spaced from others; if not, transmitters will have to be changed or isolated so as not to interfere with other competitors.

5.0 Presentation Skills Events

The Oral Presentation Skills Events are conducted in two sessions

- Oral Presentation about the vehicle, which is scored for
  (a) Presentation Skills (Form I) and
  (b) Design and Creativity (Form II).
- Oral Manufacturing Skills (Form III).

5.1 Oral Presentations

“Presentation Skills” and “Design-and Creativity” are both scored from the main Oral Presentation. “Manufacturing Skills” are scored after a separate presentation about them.
One (or more) team member(s) will give the presentation to the judging team and audience. The Oral Presentation must include the following discussion items.

- Team members names
- Origin of the vehicle differential(s)
- Extent of use of previously made or existing parts

The presentation cannot last more than 4 minutes and should not be interrupted by questions. After the presentation, there will be approximately 2 minutes of questions. During the question period, team members other than the presenter are encouraged to answer questions.

For the oral Presentations, the car must be present to be viewed and examined by the judges in the condition specified by the team.

5.2 Judging of the Presentation Skills Event (Form I)

The judges will consider the content, organization, and delivery of the Presentation and Answers, and will only evaluate the team's ability to give a technical presentation. The team making the best Presentation (regardless of the quality of the car) wins the event.

Each Judge will use a Presentation-Skills Form I.

5.3 Scoring of the Presentation Skills Event (Form I)

The scoring of the Presentation-Skills event will be based on points from the Presentation-Skills Judging Form I. The Presentation Points will be the average of the totals from each of the Judges' forms.


PRESENTATION SCORE = average of points from Judging Forms (100 points max).

It is fully intended that the Presentation scores could range from almost zero to almost 100 to provide good separation, since there will be no 'mathematical scaling' as is done in the Performance events.

5.4 Judging for the Design and Creativity Presentation (Form II)

The concept of the Design-and-Creativity Event is to evaluate the engineering effort and comprehension that went into the design of the car and how the engineering meets the intent of this contest. The team that illustrates the best use and understanding of engineering to meet the design goals wins the Design Event. The team that illustrates the best creativity in the application of unique ideas wins the Creativity Event.

After the team's Presentation, the Judges are encouraged to ask penetrating questions relative to the team's understanding and level of analysis of the car.

The Judges will use the presentation and answers as a basis for evaluating the engineering effort. The Judges will also inspect the car to form their own opinions of the design concepts being adequate and appropriate for the application.

Each Judge will use a Design-and-Creativity Form II.

5.5 Scoring for the Design and Creativity Presentation (Form II)
The scoring of the Design-and-Creativity Events will be based on points from the Design-and-Creativity Judging Form II. The Design Points will be the average of the Design totals from each of the Judges' Forms. The Creativity Points will be the average of the Creativity Totals from each of the Judges' Forms.

SEE ALSO: "Rules regarding Repeat Entries, Section 4.4.

**DESIGN-and-CREATIVITY SCORE** = sum of Design points plus Creativity points, totaled per Judging Form III, then averaged., (250 points max). This score is the basis for one of the Event Awards.

It is fully intended that the Design-and-Creativity Scores could range from almost zero to almost 250 to provide good separation, since there will be no 'mathematical scaling' as is done in the Performance events.

### 5.6 Judging for the Manufacturing Skills Presentation (Form III)

The Judges will use their best evaluation of the information presented. Of interest will be the percentage of parts discussed, the demonstration of knowledge of the alternatives for manufacturing and the wisdom in the selection of the techniques used for this vehicle.

Each Judge will use a **Manufacturing-Skills Form III**.

The concept of the “Manufacturing Skills” Event is to evaluate the team's manufacturing and fabrication decisions and methods, keeping in mind that the car was made specifically as an entry in a low-cost design-and-performance contest for student engineers, facing only loosely-defined racing conditions, limited preparation time and resources, and restrictions tending away from the use of expensive or pre-manufactured radio-control parts.

At the conclusion of the Presentation-Skills and Design-and-Creativity Events, the team will have 2 minutes to describe the manufacturing techniques used on the car parts. This will be a less formal presentation and can have interactive questions from the Judges; Judges’ “question time” does not deduct from team’s “allotted” time.

Economical cost, strength, and reliability will be considered. The team that presents the best approach to the parts of the car wins the event.

### 5.7 Scoring for the Manufacturing Skills Presentation (Form III)

The scoring of the Manufacturing-Skills event will be based on points from the Manufacturing-Skills Judging Form III. The Manufacturing-Skills Points will be the average of the totals from each of the Judges' forms.


**MANUFACTURING-SKILLS SCORE** = average of points from Judging Forms (100 points max).

It is fully intended that the Manufacturing-Skills scores could range from almost zero to almost 100 to provide good separation, since there will be no 'mathematical scaling' as is done in the Performance events.

### 6.0 Performance Events
There will be **THREE PERFORMANCE EVENTS** which test the abilities of the car in acceleration, cornering, and maneuverability on a variety of tracks:

- **Acceleration**
- **Slalom**
- **Baja**

Each of these events are described here in terms of the concept and what is intended to be tested.

It is intended that the car compete in all events without any changes that would provide an advantage for a particular event. Therefore, car-modifications and tire-style changes affecting the performance of the car will not be allowed after first competition in any event. Necessary repairs (no modifications) will be allowed if the judges are notified of the simple necessity and general nature of the repairs.

Before set-up and competition, the Host Student Section shall examine the transmitter frequencies to verify that they are as pre-registered or at least unique and properly spaced from others; if not, transmitters will have to be changed or isolated so as not to interfere with other competitors.

To reduce the possibility of disabling damage to each vehicle, the Acceleration Event shall be entered first, then the Slalom Event, and then the Baja Event. Departures from this sequence are by team’s own approval and risk. Each event will be run by each vehicle individually.

### 6.1 Acceleration Event

The concept of the Acceleration Event is to evaluate the car's acceleration ability. This event rewards cars that are lightweight and can deliver power efficiently to the ground. The team having the highest point score (via lowest elapsed time) wins this event.

#### 6.1.1 Acceleration Race Course

Each vehicle will accelerate from a standing start behind the starting-line onto a straight track of length of 60 feet or more (the Host Student Section is encouraged to maximize the track length beyond 60 feet) on a flat surface with a track width of 9 feet. Special agents that increase traction may not be added to the tires or track surface. Tires that would leave marks on the venue’s floors will not be allowed, and may be disqualified. Elapsed time begins with the 'Start!' signal, and ends when the vehicle crosses the finish-line.

No time penalty will be assessed for hitting or displacing a barrier, or for going outside a non-barrier-type (e.g. masking tape, chalk) track boundary, but the clock will continue to run.

#### 6.1.2 Acceleration Heats and Runs

This event calls for two Drivers from each team. Each Driver will be given one individual run. The total elapsed time to complete each run, from 'Start!' signal to finish line, will be recorded.

The Driver may stand anywhere or move about, during the run. The Driver (only) may rescue, by hand, a stranded or marooned vehicle, but the clock will continue to run during the rescue. The rescue may not improve the track location or velocity of the vehicle.

### 6.2 Slalom Event

The concept of the Slalom Event is to measure the cornering ability of the vehicle while making rapid, successive turns. The team having the highest point score (via lowest elapsed time) wins this event.
6.2.1 Slalom Race Course

The course will have the general shape of a bowling alley lane. There will be ten pylons in a straight or offset central line, laid out between two side barriers. The pylons will be four feet from each other and four feet from any side barrier. A combined start-and-finish line will be at one end of the course, and the first pylon will be four feet from the start/finish line.

The vehicle shall begin by crossing the start/finish line, pass to one side of the nearest pylon, wend its way between each of the successive pylons in order (passing each on alternating sides), pass around the far side of the farthest pylon, then return, again wending between successive pylons, and end the run by crossing the start/finish line. This complete circuit (across the line, all the way out, all the way back, and across the line again) is called a "run".

"Elapsed time" begins with the 'Start!' signal, and ends when the vehicle crosses the finish-line. No time penalty will be assessed for hitting or displacing a pylon or barrier, but the clock will continue to run, and displaced items will remain in that displaced position and still count as pylons or barriers for maneuvering purposes for the duration of that run. No time penalty will be assessed for going outside a non-barrier-type (e.g. masking tape, chalk) track boundary, but the clock will continue to run.

6.2.2 Slalom Heats and Runs

This event calls for two Drivers from each team. Each Driver will be given one individual run. The total elapsed time to complete each run, from starting line to finish line, will be recorded. The Driver may stand anywhere or move about, during the run. The Driver (only) may rescue, by hand, a stranded or marooned vehicle, but the clock will continue to run during the rescue. The rescue may not improve the track location or velocity of the vehicle.

The first Driver may pass the first pylon on either the right side or the left side (thus setting the route along the rest of the course for that run). The second Driver must pass the first pylon on the opposite side from the selection used by the first Driver. Thus, while the layout of the course remains the same, the second run will be of the "opposite hand" from the first.

6.3 Baja Event

The concept of the Baja Event is to evaluate the car's maneuverability and handling qualities on a tight and difficult course. This course will combine the performance features of acceleration, braking, and cornering, in one event. Team having the highest point score (via lowest elapsed time) wins the event.

To best challenge the car's design, the track will simulate an actual off-road Baja track, with bumps and jumps, in a manner such as can be constructed inside a building or in a college courtyard.

6.3.1 Baja Race Course

Race-course lay-out and features are determined by the ingenuity of the Host Student Section. Creativity and challenging features are encouraged. Parts of the racing-surface may be “slick” or may be “rough,” to simulate different kinds of “Baja” terrain and traction.

The Baja Race Course may have any combination of the following features:

- Jumps
- Drop offs
- Bumps (single or multiple)
- Large ramp or platform
• Slalom or tight maneuvering section
• Off-tilted and changing-radius or sharp-radius turns
• Sand, gravel, or rock-filled pit

Varying types of course surfaces should also be expected. The following course features have been used in prior races

• Grass and Astro-Turf™
• Asphalt
• Concrete both smooth and rough finish
• Carpeting / rugs
• Plastic (PVC)
• Wood including plywood and varnished wood gym floor
• Rubber mats
• Ice
• Duct-tape
• Plastic tarps
• Chicken-wire
• Plaster of Paris
• Sand and dusty surfaces

The Baja Race Course features must meet the following criteria.

• Obstacles to be “jumped” shall be no higher than six inches.
• Drop-offs shall be no higher than twelve inches.
• The course shall include at least one long straight portion with at least one three- to six-inch jump in it.
• The track shall be laid out with clearances such that a 36-inch-diameter circular template would be able to transit the entire course at the level used by the vehicles. (This template could look like a garbage-can lid of that diameter and would check all minimum passages and clearances.)
• Ramps and all parts of the track shall provide at least 36” width of road-and-driving surface.
• Any racing-surface going “up” shall be blended or 'radiused' at its start with carpet, cardboard, duct tape, or the like. The transition angle onto rising features or surfaces shall be no steeper than 45°
• Edges of features, barriers or rugs that could snag or ensnare the vehicles must be blended with duct-tape or the like.
• Mechanized, moving, or intermittent track features (e.g. turn-tables, conveyors, drawbridges) are prohibited. To be fair to all competitors, the track shall be of a constant and static configuration.
• Course will have a start and finish line, possibly coincident. Approximate length of the course will be 400 feet, possibly attained by multiple laps.
• The minimum overhead clearance at any location of the course is 24 inches.
• Tunnels and overpasses that obscure visibility are prohibited
• Any exposed screws, nails, and wire structures shall be protected so as to not snag or ensnare the vehicles.
• Ramps or platforms that result in the vehicle being exposed to a drop of larger than 12” shall have side walls or other protection to cushion the vehicle if it falls.
1. Standing water or water hazards are prohibited, however the course may be damp.

6.3.2 Heats and Runs

The Baja event will be performed by two Drivers from each team. Each Driver will be given one individual run. The total elapsed time to complete each run, from 'Start!' signal to finish line, will be recorded. The Driver may stand anywhere or move about, during the run.

The Driver (only) may rescue, by hand, a stranded or marooned vehicle. Rescues may not improve track location or velocity of vehicle; except if the vehicle cannot get over a course obstacle after three good-faith attempts, the Driver can carry or drive around to the other side. The clock will continue to run during rescues. Vehicle may go completely outside a non-barrier-type (e.g. masking tape, chalk) track boundary on an outside turn or a straight portion of the track; but if ALL of the vehicle’s wheels go outside a boundary on a inside turn (“taking a short-cut”), that turn must be repeated from at or behind point of departure.

After each run, in order to save time, team members shall assist in clearing their car (and remnants) off the track so that another team can be running.

It is expected that teams from the "Host Student Section" shall be honorable, by NOT taking any advantage from advance practice on a track, facility, or racing arrangement prepared by their own school for this event (there have NEVER been any complaints in this regard).

7.0 Judging and Scoring

The main task of the Judges is to score the Presentation Skills Events. While the judges do have additional responsibilities, evaluating each teams presentations and accurately capturing their scores directly affects the outcome of the entire contest. Since the Performance Events are simply timed events, the judges do not assign team scores for those events. However, the judges are to tally the scores from the Performance Events. The Performance Events are scored based on each team’s best (lowest) time-score, converted into Points Scores by specific formulae.

7.1 Disqualification of Teams

Teams may be disqualified for not following the rules contained within this document, particularly relating to vehicle requirements and team conduct.

Teams may be disqualified for unruly or unsportsmanlike behavior, or by showing a deliberate pattern of avoiding or circumventing the intent of the race courses. Teams should conduct themselves in a professional manner throughout the contest keeping in mind they are representing not only themselves but also their school and ASME Student Section.

Vehicles whose equipment or construction is in violation of these Rules may, at the Option of the Host Student Section and Judges, compete in all events for enjoyment, but shall be not eligible to be “ranked” or “win.”

7.2 Acceleration Event

The best (lowest) time, obtained by either of the team's Drivers, will be the TIME score for that team. $T_{\text{your}} = \text{Your team’s best (lowest) time, regardless of which Driver.}$
FASTER CARS GET MORE POINTS.

The formula awards 50 points for entering the event in good faith, plus up-to-150 more points based on elapsed time. Minimum score, for the slowest car, is 50. Maximum score, for the fastest car, is 200. Other cars receive scores between 50 and 200. Cars that try in good faith but cannot finish the course are simply awarded 50 points for entering.

It is necessary to know the fastest time overall and the slowest time overall, before making any Points calculations.

\[ T_{\text{min}} = \text{fastest time by any of the teams} \]
\[ T_{\text{max}} = \text{slowest time by any of the teams} \]

\[ \text{ACCELERATION SCORE} = \left( \frac{T_{\text{max}}}{T_{\text{your}}} \right)^2 - 1 \]
\[ \frac{\left( T_{\text{max}} / T_{\text{your}} \right)^2 - 1}{\left( T_{\text{max}} / T_{\text{min}} \right)^2 - 1} \times 150 + 50 \]

Please be alert that there are squared-exponents in this formula.

7.3 Slalom Event

The best (lowest) time, obtained by either of the team's Drivers, will be the TIME score for that team. \( T_{\text{your}} = \text{Your team's best (lowest) time, regardless of which Driver.} \)

FASTER CARS GET MORE POINTS.

This formula awards 50 points for entering the event in good faith, plus up-to-150 more points based on elapsed time. Minimum score, for the slowest car, is 50. Maximum score, for the fastest car, is 200. Other cars receive scores between 50 and 200. Cars that try in good faith but cannot finish the course are simply awarded 50 points for entering.

It is necessary to know the fastest time overall and the slowest time overall, before making any Points calculations.

\[ T_{\text{min}} = \text{fastest time by any of the teams} \]
\[ T_{\text{max}} = \text{slowest time by any of the teams} \]

\[ \text{SLALOM SCORE} = \frac{\left( T_{\text{max}} / T_{\text{your}} \right) - 1}{\left( T_{\text{max}} / T_{\text{min}} \right) - 1} \times 150 + 50 \]

Please be alert that there are NO exponents in this formula.

7.4 Baja Event

The best (lowest) time, obtained by either of the team's Drivers, will be the TIME score for that team. \( T_{\text{your}} = \text{Your team's best (lowest) time, regardless of which Driver.} \)

There is a Baja TIME-LIMIT, equivalent to running the full course at 1.0 MPH. Host School measures the center-line main-route length of its own track and divides by 1.0 MPH to determine the maximum allowable Time Limit; for example, 272.7 seconds for an exactly 400-foot course. Cars that try in good faith but break down or exceed the Time-Limit are simply awarded a Time score equal to the Time-Limit. Time scores can’t exceed Time-Limit.
FASTER CARS GET MORE POINTS.

This formula awards 50 points for entering the event in good faith, plus up-to-150 more points based on elapsed time. Minimum score, for the slowest car, is 50. Maximum score, for the fastest car, is 200. Other cars receive scores between 50 and 200. It is necessary to know the fastest time overall and the slowest time overall, before making any Points calculations.

\[ T_{\text{min}} = \text{fastest time by any of the teams} \]
\[ T_{\text{max}} = \text{slowest time or Time Limit by any of the teams} \]

\[
\text{BAJA SCORE} = \frac{(T_{\text{max}} / T_{\text{your}}) - 1}{(T_{\text{max}} / T_{\text{min}}) - 1} \times 150 + 50
\]

Please be alert that there are NO exponents in this formula.
Appendix A: Judging Form I - Presentation Skills

School ____________________
Car I.D____________________
Judge:____________________

PRESENTATION-SKILLS: 100 POINTS MAXIMUM

Judges
Notes:_____________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________
___________________________________________________________________________________________________

Score the following categories on the basis of 0 - 20 points each, according to the following scale (any number or fraction along this scale can be used): In accordance with rules for “Repeat Entries” (page 2), full Presentation-Skills points can be given for describing features retained from a previous year’s entry.

CONTENT: Were the concepts presented in a manner appropriate and adequate to explain how the car meets the intent of the customer contest? Were enough technical details presented without being boring?

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<tbody>
<tr>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>inadequate</td>
<td>below par</td>
<td>average</td>
<td>above par</td>
<td>excellent</td>
</tr>
</tbody>
</table>

ORGANIZATION: Were the concepts presented in a logical order, progressing from basic concept and showing how the engineering accomplished the concept? Was it clear to the listener, what was to be presented, and what was coming next? Were a distinct introduction, overviews, and a summary with conclusions given?

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<tr>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>inadequate</td>
<td>below par</td>
<td>average</td>
<td>above par</td>
<td>excellent</td>
</tr>
</tbody>
</table>

VISIBILITY: Were (optional) visual aids (if any) used effectively, or, were clear visual references made to the car? Were the illustrations (if any) visible to all of the audience?

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<tr>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>inadequate</td>
<td>below par</td>
<td>average</td>
<td>above par</td>
<td>excellent</td>
</tr>
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DELIVERY: Did the presenter speak in a clear voice? Did the presenter show enthusiasm and promote confidence in the technical aspects? Did the presenter maintain eye-contact?

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<tr>
<td>0</td>
<td>5</td>
<td>10</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>inadequate</td>
<td>below par</td>
<td>average</td>
<td>above par</td>
<td>excellent</td>
</tr>
</tbody>
</table>

QUESTIONS: Did each answer indicate that the team fully understood that question and the intent of that question? Could it be seen that the whole team understood the answer as given? Did the team promote complete confidence in their responses to the questions?

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<td>20</td>
</tr>
<tr>
<td>inadequate</td>
<td>below par</td>
<td>average</td>
<td>above par</td>
<td>excellent</td>
</tr>
</tbody>
</table>

TOTAL PRESENTATION-SKILLS SCORE =
Appendix B: Judging Form II - Design & Creativity

**DESIGN: 150 POINTS MAXIMUM**

**Judges Notes:**

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Score each of the following three questions on the basis of 0 to 50 points. Any number from 0 to 50 can be used. In accordance with rules for “Repeat Entries”, proportionally fewer points are given for design features retained from a previous year’s entry.

**Design Implementation:** Does the vehicle appear properly designed for all the competitions, well thought-out, dependable but economical, nimble but easy to control?

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<tr>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
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</table>

Clunky                        Elegant

**Design Background:** To what degree is the vehicle a result of research, analysis, and engineering decisions?

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<tr>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
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</table>

Shade-Tree                   Engineered

**Engineering Principles:** How well do the team members understand the engineering principles of their design?

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<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

Minimally                    Thoroughly

**TOTAL DESIGN SCORE** =

---

**CREATIVITY: 100 POINTS MAXIMUM**

**Judges Notes:**

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Score the following question on the basis of 0 to 100 points. Any number from 0 to 100 can be used. In accordance with rules for “Repeat Entries” (page 2), no points are given for creativity features retained from a previous year’s entry.

Does the vehicle show originality and creativity in its design, materials, components, and controls?

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</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
<td>40</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td></td>
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</tbody>
</table>

Blah                          Brilliant

**CREATIVITY SCORE** =

---
Appendix C: Judging Form III - Manufacturing Skills

MANUFACTURING SKILLS: 100 POINTS MAXIMUM

Judges
Notes:______________________________________________________________________________________________
____________________________________________________________________________________________________
____________________________________________________________________________________________________
____________________________________________________________________________________________________
____________________________________________________________________________________________________

Score each of the following two questions on the basis of 0 to 50 points. Any number from 0 to 50 can be used. In accordance with rules for “Repeat Entries” (page 2), proportionally fewer points are given for manufacturing features retained from a previous year’s entry.

Decisions: Did the team demonstrate a broad practical knowledge of current manufacturing options and methods, and make wise decisions about “making vs. buying” individual parts?

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<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

Shade-Tree Engineered

Implementation:

Does the vehicle show nice degrees of economy, strength, and reliability?

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</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

Clunky Elegant

TOTAL MANUFACTURING-SKILLS SCORE =
Appendix D: Event Scoring Recap

**ORAL PRESENTATIONS:** For each vehicle, each Judge will need a Form I, a Form II, and a Form III. “Presentation Skills” and “Design-and Creativity” are both scored from the main oral Presentation; “Manufacturing Skills” are scored after a separate presentation about them.

<table>
<thead>
<tr>
<th>Presentation Skills</th>
<th>Design &amp; Creativity</th>
<th>Manufacturing Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Judged on organization, content, delivery, etc. Visual aid’s are allowed but entirely optional.</td>
<td>Judged on design and creativity of vehicle, as shown in main Presentation.</td>
<td>Separate presentation, follows main Presentation about vehicle.</td>
</tr>
<tr>
<td>Presentation counts, NOT the quality of the car. 4 minutes talk 2 minutes for questions Uses Judging Form I</td>
<td>Design 150 pts max Creativity 100 pts max Uses Judging Form II</td>
<td>Less formal; includes Q&amp;A with Judges</td>
</tr>
</tbody>
</table>

**MAX POSSIBLE**

| 100 POINTS | 250 POINTS | 100 POINTS |

**PERFORMANCE EVENTS** Host School furnishes a Master-of-Ceremonies and Starters / Timers, a “road-repair crew,” and people to make and record math-calculations of Points-Earned from Elapsed-Times.

In each event, “Point” scores are calculated from “Time” scores per specific Formulae. The Formulae determine and distribute Points between the slowest and fastest cars. In each event, it is necessary for all cars to compete before calculating any “Points” because the Formulae use the fastest and slowest times as calculation-constants.

<table>
<thead>
<tr>
<th>Acceleration</th>
<th>Slalom</th>
<th>Baja</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprint</td>
<td>Zig-zag</td>
<td>Baja Course</td>
</tr>
<tr>
<td>50 points plus up to 150 points per formula</td>
<td>50 points plus up to 150 points per formula</td>
<td>50 points plus up to 150 points per formula</td>
</tr>
</tbody>
</table>

**MAX POSSIBLE**

| 200 POINTS | 200 POINTS | 200 POINTS |

**TO DETERMINE A TEAM’S TOTAL SCORE:**

<table>
<thead>
<tr>
<th>Presentation-Skills Score</th>
<th>Design Score</th>
<th>Creativity Score</th>
<th>Manufacturing Skills Score</th>
<th>Acceleration Point-Score</th>
<th>Slalom Point-Score</th>
<th>Baja Point-Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>= _____ (0 – 100, from Judging Form I)</td>
<td>= _____ (0 – 150, from Judging Form II)</td>
<td>= _____ (0 – 100, from Judging Form II)</td>
<td>= _____ (0 – 100, from Judging Form III)</td>
<td>= _____ (50 – 200, from formula based on elapsed-time)</td>
<td>= _____ (50 – 200, from formula based on elapsed-time)</td>
<td>= _____ (50 – 200, from formula based on elapsed-time)</td>
</tr>
</tbody>
</table>

**TOTAL SCORE**

**BEST DESIGN-AND-CREATIVITY SCORE:** _____ (0 – 250, total from Judging Form II)
Examples of Previous Years’ Schedules and Fliers
RSC 2000
at
Gonzaga University,
Spokane, WA

April 7-9, 2000

Questions?
Audrey Wallace – awallac2@gonzaga.edu
Adam Crawford – acrawfor@gonzaga.edu
Dr. Capobianchi – capobian@gonzaga.edu

http://www.asme.org/studsects/gonzaga/
American Society of Mechanical Engineers
Region VIII 2004 Regional Student Conference

IDAHO STATE UNIVERSITY

Pocatello, Idaho
April 2-3, 2004
### Boise State University
### 2006 ASME Spring Conference Schedule

#### Friday, April 7, 2006

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00 PM - 5:00 PM</td>
<td>Registration</td>
<td>MEC Lobby</td>
</tr>
<tr>
<td>3:00 PM - 5:00 PM</td>
<td>Early Old Guard Oral Presentations</td>
<td>MEC 106</td>
</tr>
<tr>
<td>5:00 PM - 6:00 PM</td>
<td>Time for travel to DCI and setup of SDC</td>
<td>Discovery Center of Idaho (DCI)</td>
</tr>
<tr>
<td>6:00 PM - 6:30 PM</td>
<td>Welcoming speech from Dean Shrader from the Boise State College of Engineering</td>
<td>Discovery Center of Idaho (DCI)</td>
</tr>
<tr>
<td>6:30 PM</td>
<td>Informal Dinner: Everyone is encouraged to view the Discovery Center of Idaho exhibits and SDC.</td>
<td>DCI</td>
</tr>
<tr>
<td>6:30 PM - 7:00 PM</td>
<td>Student Design Contest: Check-in with devices and meet with contestant teams.</td>
<td>DCI</td>
</tr>
<tr>
<td>7:00 PM - 7:30 PM</td>
<td>Student Design Contest: Inspect device size, Judges' inspection.</td>
<td>DCI</td>
</tr>
<tr>
<td>7:30 PM - 8:00 PM</td>
<td>Student Design Contest: Peer Review, followed by judges re-inspection</td>
<td>DCI</td>
</tr>
<tr>
<td>8:00 PM - 10:00 PM</td>
<td>Student Design Competition*</td>
<td>DCI</td>
</tr>
</tbody>
</table>

#### Saturday, April 8, 2006

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 AM - 8:00 AM</td>
<td>Students on their own for breakfast</td>
<td>MEC Lobby</td>
</tr>
<tr>
<td>8:00 AM - 9:00 AM</td>
<td>Orientation and Check-In for Old Guard Oral Competitors.</td>
<td>ET 110</td>
</tr>
<tr>
<td>9:00 AM - 12:00 AM</td>
<td>Old Guard Technical Web Viewing</td>
<td>MEC 103</td>
</tr>
<tr>
<td>9:00 AM - 12:00 PM</td>
<td>Old Guard Technical Poster Viewing</td>
<td>MEC 106</td>
</tr>
<tr>
<td>9:00 AM - 12:00 PM</td>
<td>Old Guard Oral Competition</td>
<td>ET 110</td>
</tr>
<tr>
<td>12:00 PM - 1:00 PM</td>
<td>Lunch: Presentation by Peter Bryant. &quot;BC Car Design&quot;</td>
<td>ET Lobby</td>
</tr>
<tr>
<td>1:00 PM - 3:00 PM</td>
<td>Old Guard Oral Competition</td>
<td>ET 110</td>
</tr>
<tr>
<td>1:00 PM - 4:00 PM</td>
<td>Graduate Student Technical Conference</td>
<td>MEC 106</td>
</tr>
<tr>
<td>1:00 PM - 3:00 PM</td>
<td>Micro Baja Check-In and Inspection</td>
<td>MEC 114</td>
</tr>
<tr>
<td>3:00 PM - 6:00 PM</td>
<td>Micro Baja Competition</td>
<td>HML / Fountain</td>
</tr>
<tr>
<td>7:00 PM - 10:00 PM</td>
<td>Closing Ceremonies, Dinner, T-Shirt contest, Awards</td>
<td>Discovery Center of Idaho (DCI)</td>
</tr>
</tbody>
</table>
## 2006 Student Conference -Boise Idaho Micro-Baja Contestants

<table>
<thead>
<tr>
<th>School</th>
<th>Team Members</th>
<th>Device Name</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boise State University</td>
<td>Robert Cox</td>
<td>Crazy Horse</td>
<td>75.71 MHz</td>
</tr>
<tr>
<td></td>
<td>Ryan Cowgill</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ian Hazel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tim Gollightly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana State University</td>
<td>Brandon Cox</td>
<td>CHAMP</td>
<td>75.530 MHz</td>
</tr>
<tr>
<td></td>
<td>Hal Maa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Samuel Mather</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wesley Horton</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montana State University</td>
<td>Lance Johnson</td>
<td>Shorty</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Chad Wagenhals</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Robert Baenziger</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portland State University</td>
<td>Kenneth Lou</td>
<td>Kit</td>
<td>61 Am 75 Mhz</td>
</tr>
<tr>
<td></td>
<td>Alex Higgins</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chantelle Hansen</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erik Chamberlain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Idaho - Moscow</td>
<td>Kurt Hall</td>
<td>Krall</td>
<td>27.255 Mhz or 27.195Mhz</td>
</tr>
<tr>
<td></td>
<td>Michela Moreland</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Matthew Herset</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brennan Metcalf</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Randi Adams</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Louis Duchene</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jerald Lane</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doug Overholtzer</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Phil Arpke</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Washington University</td>
<td>Tyler Foster</td>
<td>Felis Silvestris</td>
<td>75.430 (ch.62)</td>
</tr>
<tr>
<td>Tacoma Community College</td>
<td>Hovey Moore</td>
<td>Vindicator</td>
<td>87 (62 or 74)</td>
</tr>
<tr>
<td>Tacoma Community College</td>
<td>Greg Moore</td>
<td>Propagator</td>
<td>87 (62 or 74)</td>
</tr>
</tbody>
</table>
## 2006 Student Design Contest
Boise, ID
"Sip and Puff" Controlled Fishing Rod for Quadriplegics

<table>
<thead>
<tr>
<th>School</th>
<th>Names</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oregon State University</td>
<td>David Meeker</td>
<td>Oregon State Caster</td>
</tr>
<tr>
<td></td>
<td>Tesfalem Zewdneh</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paul Stuart</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kyle Zirschky</td>
<td></td>
</tr>
<tr>
<td>University of Idaho</td>
<td>Edwin Anderson</td>
<td>Quad Rod</td>
</tr>
<tr>
<td></td>
<td>Randall Storms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>James Watson</td>
<td></td>
</tr>
<tr>
<td>Washington State University - Pullman</td>
<td>Craig Cordill</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cory Overman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stanley Gross</td>
<td></td>
</tr>
</tbody>
</table>
### 2006 Old Guard Oral Presentation Contest
**Boise, ID**

<table>
<thead>
<tr>
<th>Name</th>
<th>School</th>
<th>Title</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kathryn McDonald</td>
<td>University of Idaho</td>
<td>Scoping the Feasibility of Using the Passive Product Entrainment Method for Uranium Product Transport and Removal in an Electorefiner</td>
<td>9:00am - 9:15am</td>
</tr>
<tr>
<td>Brad Kinney</td>
<td>Boise State University</td>
<td>The Use of Wavelets in Analysis of Audio Signals</td>
<td>9:20am - 9:30am</td>
</tr>
<tr>
<td>Sean Jackson</td>
<td>Central Washington University</td>
<td>Solar Car Suspension</td>
<td>9:35am - 9:50am</td>
</tr>
<tr>
<td>Matt McCrink</td>
<td>Boise State University</td>
<td>Micro-Propulsion Devices in Low Temperature Co-Fired Ceramics</td>
<td>9:55am - 10:10am</td>
</tr>
<tr>
<td>Ryan Stanton-Wyman</td>
<td>Gonzaga University</td>
<td>Automating Control of Carbon Fiber Presentation to a Loom</td>
<td>10:15am - 10:30am</td>
</tr>
<tr>
<td>Andrew Byers</td>
<td>St. Martin's University</td>
<td>Bluetooth Technologies</td>
<td>10:35am - 10:50am</td>
</tr>
</tbody>
</table>

### 2006 Graduate Student Technical Conference
**Boise, ID**

<table>
<thead>
<tr>
<th>Name</th>
<th>School</th>
<th>Title</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phillip Arpke</td>
<td>University of Idaho</td>
<td>A Case Study of Drawing Standardization and Design</td>
<td>1:00pm - 1:20pm</td>
</tr>
<tr>
<td>Brandon Chaffin</td>
<td>Boise State University</td>
<td>Impact Characteristics of a Soccer Ball with a Sherical Surface</td>
<td>1:25pm - 1:45pm</td>
</tr>
<tr>
<td>Wayne Fischer</td>
<td>Boise State University</td>
<td>Application of the Continuous Wavelet Transform to Acoustic Emissions Generated by Joint and Muscle Motion</td>
<td>1:50pm - 2:10pm</td>
</tr>
<tr>
<td>Dathan Froerer</td>
<td>Boise State University</td>
<td>Self Calibrating Transient Inverse Heat Transfer Test</td>
<td>2:15pm - 2:35pm</td>
</tr>
<tr>
<td>V. A. Gudimella</td>
<td>University of Alaska - Fairbanks</td>
<td>A Comparison Between Analytical and Numerical Heat Transfer Results for Gas Hydrate Reservoir</td>
<td>2:40pm - 3:00pm</td>
</tr>
<tr>
<td>Tina Klaisle</td>
<td>University of Idaho</td>
<td>Design Process for Rollicurve Gears</td>
<td>3:05pm - 3:25pm</td>
</tr>
<tr>
<td>Brandon Chaffin</td>
<td>Boise State University</td>
<td>Comparison of Mechanical Behavior for Stainless Steel and Titanium Rods in a Spinal-Pelvic Fixation Assembly with Lumbar Curvature</td>
<td>3:30pm - 3:50pm</td>
</tr>
</tbody>
</table>
### 2006 Old Guard Technical Poster Contest
Boise, ID

<table>
<thead>
<tr>
<th>Name</th>
<th>School</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casey Huffaker</td>
<td>Boise State University</td>
<td>Acoustic Characterization of Stethoscopes</td>
</tr>
<tr>
<td>Michael Hagler</td>
<td>Boise State University</td>
<td>Magneto-Mechanical Properties of Ni-Mn-Ga with Different Microstructures</td>
</tr>
<tr>
<td>Katie Worman</td>
<td>Montana State University</td>
<td>Spur Gear Design Program Development</td>
</tr>
<tr>
<td>Kenneth Hanson, Jr</td>
<td>Saint Martin's University</td>
<td>Mechanical Engineering</td>
</tr>
</tbody>
</table>

### 2006 Old Guard Technical Web Page Contest
Boise, ID

<table>
<thead>
<tr>
<th>Name</th>
<th>School</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adam Gomez</td>
<td>University of Idaho</td>
<td></td>
</tr>
<tr>
<td>Alex Olson</td>
<td>University of Idaho</td>
<td>FSAE Website</td>
</tr>
</tbody>
</table>
Student Professional Development Conference 2007

Moscow, ID
March 30 & March 31
Friday, March 30

3:00 PM – 5:00 PM  Registration & T-shirt Check-In  Gauss-Johnson Rm. 115
3:00 PM – 5:30 PM  Student Design Check-In  Gauss Johnson Rm. 120 (HEV SHOP)
5:00 PM – 5:15 PM  Welcome/Reception  Gauss Johnson Rm. 108
5:15 PM – 6:00 PM  Dinner  Gauss Johnson Rm. 108
5:30 PM – 6:00 PM  Student Design Setup  Gauss Johnson Rm. 120 (HEV SHOP)
6:00 PM – 7:00 PM  Early Old Guard Oral Presentations  Gauss Johnson Rm. 112 (MINDWORKS)
7:00 PM – 9:00 PM  Student Design Competition (SDC)  Gauss Johnson Rm. 120 (HEV SHOP)

SDC Competitors
Human Powered Water Still- Green River Community College
Safa Pani- Idaho State University
The Killer Still- Montana State University
Cranky Water Still- Montana State University
Gatorade is Better- South Dakota School of Mines & Technology
Vandal Distilleries- University of Idaho

Saturday March 31

7:30 AM – 8:00 AM  Breakfast (on own)  Hotels
8:00 AM – 9:00AM  Old Guard Technical Poster Check-In & Setup  Whitewater Lobby
8:00 AM – 9:00AM  Web Site Check-In & Setup  Whitewater Lobby
8:00 AM – 8:15 AM  Old Guard Orientation  Whitewater Room
8:15 AM – Noon  Old Guard Oral Presentations  Whitewater Room

Oral Guard Oral Presentations
8:15  Mark Hofacker- South Dakota School of Mines and Technology
8:45  Jennifer Hasenohrl- University of Idaho/Moscow
9:15  Trevor Jerdee- Washington State University/Pullman
9:45  Jennifer Jones- Portland State University
10:15  Erika Tyler- Seattle University
10:45  Andrea Roma- Green River CC
11:15  Douglas Van Bussuyt- Oregon State University

8:30 AM – Noon  Graduate Student Technical Presentations  Clearwater Room

Graduate Student Technical Presentations
8:30  Lloyd Gallup- University of Idaho  
9:00  Chris Huck- University of Idaho  
9:30  Praveen Namburu- University of Alaska-Fairbanks  
10:00  Jason Sagen- University of Idaho  
10:30  Matt Smith- University of Idaho  

9:00 AM – 2:00 PM  Old Guard Technical Poster Viewing  
Old Guard Technical Poster Competitors  
  Brennan Sheehy- Oregon Institute of Technology  
  Nick Harker- University of Idaho  

9:00 AM – 2:00 PM  Technical Web Site Viewing  
Old Guard Technical Web Site Competitors  
  Andrew Byers- Saint Martin’s College  
  Jennifer Jones- Portland State University  
  Katie Leichliter- University of Idaho  

10:00AM–11:00AM  SSC Interviews  
Noon – 1:00 PM  Lunch with Jon Van Gerpen “Future in Fuels”  
1:00 PM – 4:00 PM  Old Guard Oral Presentations (cont.)  

Oral Guard Oral Presentations  
1:00  Jacob Fouts- Boise State University  
1:30  Justin Stenkamp- Portland State University  
2:00  Matt Blake- University of Idaho/Moscow  
2:30  Andrew Lybarger- Seattle University  
3:00  Craig Cordill- Washington State University/Pullman  

1:30 PM – 2:30 PM  RC Baja Judging (Team Presentations)  
3:00 PM – 7:00 PM  RC Baja Competition  

RC Baja Teams  
  Viking I- Brigham Young University-Idaho  
  Electric Mayhem- Central Washington University  
  The Green River- Green River Community College  
  Car RamRod- Montana State University  
  Gopher- Montana State University  
  KARR- Portland State University  
  Binford5000- Tacoma Community College  

7:30 PM – 9:00 PM  Awards Banquet and Closing  

Special Thanks To:

College of Engineering
Dr. Aicha Elshabini, Dean COE
Mechanical Engineering Dept.
Dr. Don Blackketter, Chair
M.E. Staff
  Molly Steiner
  Andrea Redmond
Dr. Steve Beyerlein
Bob Carson
Brian Gin
Kalan Guiley
Crisly Izatt
Dr. David Hutton
Dr. Lloyd Smith
Dr. Karl Rink

Dr. Jon Van Gerpen
U of I Bookstore
U of I Volunteers
U of I Commons
University Inn/Best Western
Shirt Shack

ASME Staff
  Dennis Armstrong
  Bill Robbins
  Scot MacEwan
  Kemi Oluwanifise

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