



## E-WEEK RUBE GOLDBERG MACHINE CONTEST 2012

Dear Students and Organizations:

Theta Tau Coed Professional Engineering Fraternity and the Engineering Joint Council of the University of California at Davis welcome you to the Rube Goldberg Machine Contest at UC Davis.

The Rube Goldberg Machine Contest is based on the cartoons of the famed Ruben Luscious Goldberg, who took simple tasks and made them into excessively complicated machines. Inspired by this cartoonist, college students nationwide compete to design a machine that uses the most complex process to complete a simple task i.e. put a stamp on an envelope, screw in a light bulb, make a cup of coffee - in 5 or more steps.

Theta Tau challenges you and your friends to build your very own Rube Machine to compete in UC Davis's annual Rube Goldberg Machine Contest. Working on a Rube Machine is provides you a great opportunity to get your hands dirty with some real engineering and design.

The University of California – Davis Rube Goldberg contest is tentatively scheduled for Engineering Week (**Thursday, February 23<sup>rd</sup>**).

Each team must submit an entry form and a list of its members along with their major and year in school. High School students can skip the major column and indicate their class standing. The entry form can be found at: <http://davisthetatau.org/>

The deadline to register for the Rube Goldberg competition is **January 29<sup>th</sup>**. Please submit your entry form to Fred Padron and Son Bui at [RubeGoldberg@davisthetatau.org](mailto:RubeGoldberg@davisthetatau.org).

Please feel free to contact the Rube Goldberg coordinators at (408) 242-0357 if you have any further questions or concerns.

Good luck,

Fred Padron  
Rube Goldberg Co-Chair, Theta Tau Professional Engineering Fraternity



### Important Dates:

Registration Deadline: February 5<sup>th</sup>, 2012

Competition Date: February 23<sup>rd</sup>, 2012

### Contact Information:

Fred Padron

Cell: (408) 242-0357

E-mail: [fpadronnunez@ucdavis.edu](mailto:fpadronnunez@ucdavis.edu)

### Task:

## **Pop a Balloon.**

### Machine Specifications:

- The machine must complete the task as described by the Chairman.
- The machine must be **no larger** than 6 ft. x 6 ft. x 6 ft. either the 6 ft. or the 6 ft.
- The machine must have a minimum of five (5) steps.
- Teams are encouraged to be creative and complex with their machines, this is emphasizing the spirit of Rube Goldberg.
- There is no maximum number of steps.
- The machine must run for no less than thirty (30) seconds.
- No corporate logos or names may be displayed on the machine.
- No live animals may be used in the machine.
- The machine must not imply profane, indecent or lewd expressions.
- Any loose or flying objects must remain within the set boundaries of the machine. This includes, but is not limited to, drops of water, ***slivers of balloon***, and other “small” objects.  
*Steam and other gasses are exempt from this rule.*
- No flames may be used on the machine.
- No hazardous materials or explosives can be used on the machine.
- The machine must be safe to the satisfaction of the RGMC officials. The contest Chairman must approve any questionable items prior to the competition.
- Any destructive action against another machine is grounds for disqualification.
- ***Be creative! The theme of the competition will be: Life is a circus!***

### Team Restrictions:

- Each team must have a minimum of two (2) members.
- There is no limit on the number of members a team may have, however, the number of people allowed on stage once the contest has begun may be limited because of space restrictions.
- Each team member must be enrolled as a high school, undergraduate or graduate student.



### Operational Details:

- Teams will be allowed into the contest venue to set up no later than **four (4) hours** before the contest begins. At this time, teams must set up and clear the stage for the competition, which will **begin at 12:00pm**
- A team captains meeting will be held **ten (10) minutes** before the contest begins.
- Teams will compete in a designated order. Teams will complete their first run and wait until all teams have completed their first run. At this time, teams will be allowed to re-set their machines for the second run. There will be a short ten (10) minute break after the first run. The same goes for the third run. **There are three (3) runs total.**
- While the judges are calculating the results, the audience will be allowed on stage to view the machines more closely. Teams are encouraged to run their machines and answer any questions during this time.
- Each team will remove its machine and clean up its area immediately after the contest.

### Judging Criteria:

Judging will be based on a **100 point scale** broken down into the following categories:

- 1) General Impressions (40 points)
  - i) Theme (0 to 10 points)
  - ii) Rube Goldberg Spirit (0 to 20 points)
  - iii) Presentation (0 to 10 points)
- 2) Timing Issues (30 points)
  - i) Minimum Run Length (0 to 10 points)
  - ii) First Run Length (0 to 10 points)
  - iii) Second Run Length (0 to 10 points)
- 3) Run Related (30 points)
  - i) Completed Task – Run One (0 to 15 points)
  - ii) Completed Task – Run Two (0 to 15 points)
  - v) Human Interventions (-5 points each)
  - vi) Objects Leaving Machine (-3 points each)



Team Name \_\_\_\_\_

Judge \_\_\_\_\_

**General Impression (total of 0 to 40 pts)**

i. Theme (total of 0 to 10 pts) \_\_\_\_\_

• Did the machine incorporate a standard theme? (0 to 5 pts) \_\_\_\_\_

• Did each step conform to the theme? (0 to 5pts) \_\_\_\_\_

ii. Rube Goldberg Spirit (total of 0 to 20 pts) \_\_\_\_\_

• How much of the materials used for the machine appears to be found rather than bought? (0 to 5 pts) \_\_\_\_\_

• Are the steps Innovative and unique? (0 to 5 pts) \_\_\_\_\_

• Did the steps flow in series or did they branch in parallel? (0 to 2 pts) \_\_\_\_\_

• How many steps were incorporated into the machine? (0 to 8 pts) \_\_\_\_\_

iii. Presentation (0 to 10 pts) \_\_\_\_\_

• Clear and well displayed poster (0 to 5 pts) \_\_\_\_\_

• Ability to answer questions and explain their machine (0 to 5 pts) \_\_\_\_\_

**General Impression Total** \_\_\_\_\_

**Timing Issues (total of 0 to 30 pts)**

i. Minimum Run Length (0 to 10 points) \_\_\_\_\_

Does the machine run for a minimum of thirty seconds (30)?

Run 1 \_\_\_\_\_

Run 2 \_\_\_\_\_

Run 3 \_\_\_\_\_



ii. First Run length (0 to 10 pts)

The difference between predicted run length and actual run length

-1 pt per 1 second

Predicted Run Length \_\_\_\_\_

Actual Run Length \_\_\_\_\_

Difference in Duration \_\_\_\_\_

iii. Second Run length (0 to 10 pts)

The difference between predicted run length and actual run length

-1 pt per 1 second

Predicted Run Length \_\_\_\_\_

Actual Run Length \_\_\_\_\_

Difference in Duration \_\_\_\_\_

iv. Third Run length (0 to 10 pts)

The difference between predicted run length and actual run length

-1 pt per 1 second

Predicted Run Length \_\_\_\_\_

Actual Run Length \_\_\_\_\_

Difference in Duration \_\_\_\_\_

**Timing Issues Total** \_\_\_\_\_

**Run Related (max total 30 pts)**

i. Completed Task (Run 1)

If task is completed, 15 pts

\_\_\_\_\_



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If half the steps are completed, 10 pts

If less than half the steps are completed 0 pts

ii. Completed Task (Run 2)

If task is completed, 15 pts

If half the steps are completed, 10 pts

If less than half the steps are completed 0 pts

iii. Completed Task (Run 3)

If task is completed, 15pts

If half the steps are completed, 10 pts

If less than half the steps are completed, 0 pts

iv. Human Intervention (-5 pts each)

Run 1 \_\_\_\_\_

Run 2 \_\_\_\_\_

Run 3 \_\_\_\_\_

v. Objects outside of 6x6 area (-3 pts each)

Run 1 \_\_\_\_\_

Run 2 \_\_\_\_\_

Run 3 \_\_\_\_\_

**Run Total** \_\_\_\_\_

**GRAND TOTAL** \_\_\_\_\_





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## Honor Code:

\*Remember: We are students of a university, a noble institution, therefore we must uphold high standards in the work carried out during this competition. To ensure that there is fair competition, please sign the honor code below.

“I affirm that I have upheld the highest principles of honesty and integrity in my work during this Rube Goldberg competition at the University of California at Davis and have not witnessed a violation of the Honor Code.”

**X** \_\_\_\_\_ .