



THETA TAU  
PROFESSIONAL ENGINEERING FRATERNITY  
Website: <http://davisthetatau.org/rubegoldberg/>

Omicron Gamma OΓ  
The University of California, Davis

## THETA TAU RUBE GOLDBERG MACHINE CONTEST 2010

Dear Students and Organizations:

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

The Rube Goldberg Machine Contest is based on the cartoons of the famed Rube 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 20 or more steps.

Theta Tau challenges you and your friends to build your very own Rube Machine to compete in UC Davis's second 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 Picnic Day (April 17<sup>th</sup>).

Each team must submit an entry form and a list of its members along with their major and year in school. This is so, if we choose, we may confirm that all team members are eligible to participate. The entry form can be found at: <http://davisthetatau.org/>

The deadline to register for the Rube Goldberg competition is (February 19). Please submit your entry form to [info@ucdthetatau.org](mailto:info@ucdthetatau.org) or you may bring it to our representative at Bainer Hall.

Please feel free to contact me at (832) 875-9026 if you have any further questions or concerns.

Good luck,

Patrick Wong  
Regent, Theta Tau Professional Engineering Fraternity



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### **Important Dates:**

Registration Deadline: February 19, 2010  
Competition Date: April 17, 2010

### **Contact Information:**

Kiyya Ararsa  
Cell: (510) 282-6288  
E-mail: [info@ucdthetatau.org](mailto:info@ucdthetatau.org)

### **Task:**

To dispense a reasonable amount of liquid hand soap to wash your hands

### **Machine Specifications:**

- The machine must complete the task as described by the Chairman.
- The machine must be no larger than 5 ft. x 6 ft. x 5 ft. either the 5 ft. or the 6 ft. dimension may be considered the “front” of the machine.
- The machine must have a minimum of twenty (20) steps.
- There is no maximum number of steps.
- The machine must run for no less than two (2) minutes per run.
- 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. It is the intent of the Local Contest Chairman to contact all teams 2 to 4 weeks prior to the competition to schedule an inspection of each team’s machine for safety.
- Any destructive action against another machine is grounds for disqualification.

### **Team Restrictions:**

- 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. This limit will be four (4) members on stage at any time.
- 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 two (2) hours before the contest begins.
  - Each team must submit six (6) concise, typed copies of a step-by-step description of their machine no later than one hour before the contest begins.
  - Teams must set up and clear the stage no later than one half hour before the contest.
  - A team captains meeting will be held twenty minutes before the contest begins.
  - Teams will compete in a designated order. The first and second runs will be completed in the same designated order.
  - Teams should be able to step up their machine for the next run within one minute.
  - 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 (50 points)
  - i) Theme (0 to 10 points)
  - ii) Rube Goldberg Spirit (0 to 20 points)
  - iii) Explanation/Description (0 to 10 points)
  - iv) Submitted Machine Description (0 to 10 points)
- 2) Timing Issues (-30 to 0 points)
  - i) Minimum Run Length (-10 to 0 points)
  - ii) First Run Length (-10 to 0 points)
  - iii) Second Run Length (-10 to 0 points)
- 3) Run Related (50 points)
  - i) Completed Task – Run One (0, 10, or 25 points)
  - ii) Completed Task – Run Two (0, 10, or 25 points)
  - iii) Human Interventions (-3 points each)
  - iv) Objects Leaving Machine (-5 points each)



**Sample Rubric**

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

Judge \_\_\_\_\_

**General Impression (total of 0 to 50 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.Explanation/Description (0 to10 pts)

• Clear and organized explanation (0 to 8 pts) \_\_\_\_\_

• All presenting member participate (0 to 2 pts) \_\_\_\_\_

iv. Submitted Machine Description (0 to 10 pts)

• Poster (0 to 3 pts) \_\_\_\_\_

• Accurately explains the flow of the machine (0 to 3 pts) \_\_\_\_\_

• Construction process (0 to 4 pts) \_\_\_\_\_

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



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

i. Minimum Run Length (-5 to 0 points)

Does the machine run for a minimum of two minutes? \_\_\_\_\_

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

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

ii. First Run length (-10 to 0 pts)

The difference between predicted run length and actual run length

2:00 min difference = -10 pts deduction, -1 pt per 12 second

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

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

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

iii. Second Run length (-10 to 0 pts)

The difference between predicted run length and actual run length

2:00 min difference = -10 pts deduction, -1 pt per 12 second

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

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

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

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

**Run Related (max total 50 pts)**

i. Completed Task (Run 1)

If task is completed, 20 pts

If half the steps are completed, 10 pts

If less than half the steps are completed 0 pts

\_\_\_\_\_



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ii. Completed Task (Run 2)

If task is completed, 20 pts

If half the steps are completed, 10 pts

If less than half the steps are completed 0 pts

iii. Human Intervention (-3 pts each)

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

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

iv. Objects outside of 6x5 area (-5 pts each)

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

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

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