ENGR 1181  |  Lab 1: Marble Delivery System Lab

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1. Overview of Marble Delivery System Lab

Marble Delivery System Lab demonstrates innovation and creativity in solving problems. In addition, it shows students the importance of teamwork. Students will gain their first lab experience with their teams.

Learning Objectives – students will be able to:

- Implement the design process
- Gain initial experience working with assigned teams
- Design and build a mechanical machine or structure that delivers up to 10 marbles from a tabletop to a receiving target

2. Task

Each team is asked to build a system to deliver the marbles to a target. The target will be located on the floor. The marbles must start behind the line marked on the table. However, the target may be placed at any distance from the table based on each team’s design. Only one start action to begin the delivery of the marbles will be allowed and no human interaction beyond the line is allowed. Each team will have a total of two runs. The final score will be based on the best performance of the two.

3. Schedule of Events

- Lab Intro/Questions  5 min
- Design and Construct  35 min
- RUN #1  10 min
- Design Modifications  10 min
- RUN #2  10 min
- Cleanup  10 min
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4. Rules and Guidelines
   • The teams are allowed to use only the parts from the K’NEX set they are provided with.
   • A maximum of 10 marbles is allowed per team.
   • The marbles must start behind the line marked on the tabletop.
   • Only one action is allowed to start the marble delivery.
   • The receiving target may be positioned anywhere on the floor before beginning the runs but must remain at the far end of the table.
   • The receiving target MAY NOT BE MOVED after the start action has occurred.
   • No practice runs will be allowed on the test desk.
   • Any dimension or property of the test area should be measured by the student.
   • Participation in RUN #1 requires a completed design.
   • After RUN #1, modifications can be done within the allotted time interval.
   • The best score from the two runs will be recorded as the final score.
   • Any other rules in accordance with the spirit of the contest will be imposed.
   • The decision of the instructor is final.

5. Scoring
   Using the "best" run, points will be awarded for:
   • Each marble in center target 10 points each
   • Each marble in outer target 5 points each

6. Clean-Up Procedure
   Please take your device apart and organize the kit before you leave the classroom.

7. Check-Out Policy
   After you have finished the lab and the clean-up procedure, have your instructor verify that your team’s area has been restored back to its original state. You will lose 5 points on the next lab assignment if your team’s area is not cleaned up properly. **There is no report required for this lab.**