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EGN 4410 Engineering Design 1 ED1

Mini Project Assignment

College of Engineering (COE)
Florida Atlantic University

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Mini Project Description

1. OBJECTIVE

This mini project is the first multidisciplinary project in Engineering Design 1. Students from Mechanical, Electrical, and Computer Engineering team up to plan, design, build and test an autonomous machine that accomplishes a task. They put their theoretical and practical knowledge and skills into action. The mini project also prepares students for the Engineering Design capstone project.

2. ASSIGNMENT

Design, build and test an autonomous vehicle that moves up from the bottom of the slope and stops on the hot spot on the bed (the top of the slope). The dimensions of this moving object should not exceed 8"(W) x12"(L) x12"(H). The material, shape, energy sources, and mobility technologies are left up to your creativity and imagination. The vehicle must however be started by an activation device (e.g. switch, mechanical release, etc., mounted on the vehicle) while it is in the start position. At the end of the run, the vehicle and all its parts, including jettisoned objects, extensions, etc., must lie completely within the bed. The testing ramp is provided by the College of Engineering.

3. LIMITATIONS

Lego Mindstorm's RCX unit may not be used. Team member may not activate any device before the start. Vehicles cannot be running and dropped to start. The vehicle must not use chemicals or dangerous substances. No rocket-type devices, CO2 propulsion devices, or chemical reactions are allowed. No mercury switches are permitted. The vehicle must not be anchored to the ramp in any way.

4. SCORING

As your vehicle moves up the slope, your score increases to 2, 4, 6, 8, or 10, gradually depending where it stops. If it goes all the way and rests on the bed you score 15. If it rests within the "hot spot", you get the perfect score 20 out pf 20. If your vehicle falls from any point from the slope or off the bed, you score only 5. Extra points (max 5) will be given to the fastest vehicle among those, which made it to the "hot spot".