

2015 Middle School Summer Engineering Technology Program

Lego Robot

Coordinator: Ali Zilouchian, Ph.D.

Week Two: June 15 – 19 and Week Three: June 22 - 26

Did you know you could build programmable robots using Legos?



If you'd like to know how, take this course.

Course Objective:

At the beginning of the course, students will be placed into teams. Through the course of the week each team will design, build, and program a Lego sumo-bot. On the last day of the course, each team's robot will compete in the Sumo-bot Challenge.

The Sumo-bot Challenge consists of two robots within a 4-foot diameter ring. The sole purpose of the sumo-bot is to seek the other robot and push it out of the ring or cause the opposing robot to become immobile.

Course Schedule:

Schedule	Morning Session	Afternoon Session
Monday	<ul style="list-style-type: none"> • Introduction to the Lego NXT kits <ul style="list-style-type: none"> ◦ Intro to motors ◦ Intro to Sensors • Introduction to the Lego NXT Development environment <ul style="list-style-type: none"> ◦ Go through the block palettes 	<ul style="list-style-type: none"> • Lego Sample Tutorials • Create basic program with motors as a class • Create individual team program
Tuesday	<ul style="list-style-type: none"> • Introduction to logic control <ul style="list-style-type: none"> ◦ Loops ◦ Switch Block ◦ Truth Tables • Introduction to Lego NXT data hubs 	<ul style="list-style-type: none"> • Create a robot with motors and sensors as a class
Wednesday	<ul style="list-style-type: none"> • Sumo-bot design brainstorming • Begin prototyping design 	<ul style="list-style-type: none"> • Design testing and alteration • Sumo-bot programming
Thursday	<ul style="list-style-type: none"> • Sumo-bot program debugging <ul style="list-style-type: none"> ◦ Fixing and altering sumo-bot program 	<ul style="list-style-type: none"> • Test matches • Sumo-bot program debugging <ul style="list-style-type: none"> ◦ Fixing and altering sumo-bot program
Friday	Sumo-bot Competition Presentation of Certificates Pizza Party	<i>No afternoon session</i>