91.110 Interactive Robotics

Teaching Programming Using Robots

...and providing opportunities to use math skills, creative problem solving, and team management skills along the way

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TEAMS Academy Background

- Concept Developed Early 2006
- Exploration Program
  - One day trips, sophomores from 16 schools participated in 3 hands-on seminars
  - ~1000 students in 3 years – promoted STEM & TEAMS
- TEAMS Academy
  - Students attended UML every morning, took 4 applied science/engineering college courses
  - Two strong years, then program on hiatus until…?
  - New & Improved TEAMS Academy in the works??
91.110 Interactive Robotics

- Used senior robotics course developed by Profs. Yanco and Martin as model, and a bit of Mataric’s materials

- Assumed no prior programming skills!

- Graduate student helped revise s/w, h/w & materials (Greg Pilla, Jim Dalphond)

- Visit TEAMS Academy Wiki for curriculum materials & sample student work
Curriculum Outline

- **Week 1:** Crickets & Logo Blocks
- **Weeks 2-4:** iRobot Create & OI
  - Base n number systems, hex, microcode
  - Explore Create’s actuators then sensors
- **Weeks 5-6:** Create & CM - Intro to C
- **Weeks 7-12:** Skill-Building Labs, External Sensors & H/W
- **Weeks 15 – 18:** Team Project - Egg Hunt
2009-2010

- Back to Tyngsborough HS (TEAMS $ ran out!)
- Semester course using Arduino
- Used many of activities from TEAMS curriculum
- Goal is to build robots or other useful projects “from scratch” & learn programming along the way