

ROBOTC for MINDSTORMS

ASEE K-12 Workshop

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What is a robot?

S: Sensor

P: Plan

A: Act

About the Mindstorm NXT

- MINDSTORM Robots
 - Inputs
 - Outputs
 - Buttons
 - Display screen
- About the NXT
 - Navigating the menus
 - Feedback from sensors



ROBOTC

- Developed specifically with teachers and classrooms in mind
- Complete programming solution for the LEGO plus several other robot platforms
- Fastest execution speed available for LEGO MINDSTORMS platform
- Incredible debugging capacity
- Very similar to industry-standard C programming

Build a robot

- <http://www.legoeducation.com>
- <http://www.amazon.com>



- <http://www.robotc.net/support/nxt/>
NXT Building Instructions (*building-instructions-rem.pdf*)
Other Building Instructions

Download Firmware

- ROBOTC requires special firmware to communicate with the NXT.
- *You have installed ROBOTC and built the robot, but the robot is not yet able to understand ROBOTC programs. You must first download firmware onto your NXT.*
- *Firmware is the operating system for your robot. Once loaded on the brick, the firmware will allow the NXT to load and run ROBOTC programs.*

Download Firmware (Cont.)

- <http://www.robotc.net/support/nxt/>

Download Firmware (*download-firmware.pdf*)

Sample Programs

- Sample programs provide already-working examples of how to program in ROBOTC.
- <http://www.robotc.net/support/nxt/>
 - [NXT Sample Programs video](#)
 - [Download Sample Programs](#) (download-programs.pdf)
 - [NXT Sample Programs menu](#) (list of RobotC Sample Programs)

Modify Code

- Make changes to a sample program to see how your modifications affect the robot's behavior.
- [http://www.robotc.net/support/nxt/NXT Movement](http://www.robotc.net/support/nxt/NXT_Movement) (Movement_Movingforward.pdf)
[NXT Common Commands menu](#) (list of RobotC Frequently Used Commands)

Use web help files for any additional resources

- <http://www.robotc.net/support/nxt/>
MINDSTORMS Web Help
- *Teaching ROBOTC for LEGO MINDSTORMS* offers a complete multimedia curriculum for classroom training or self-paced learning. Visit the *Curriculum page* to learn more.

Other resources

- http://www.robotc.net/teachingmindstorms/home/nxt_all_lessons.pdf
[nxt_challenge_pack.pdf](http://www.robotc.net/teachingmindstorms/home/nxt_challenge_pack.pdf)
[nxt_reference_guide.pdf](http://www.robotc.net/teachingmindstorms/home/nxt_reference_guide.pdf)
- ***Carnegie Mellon Robotics Academy***
<http://www.robotc.net/teachingmindstorms/home/>
- **2012 On-Site Classes:**
[NXT Professional Development](#)
[ROBOTC for LEGO](#)

Questions?

