Cyber Robotics 101 Course

Bring Cyber Robotics into your classroom. Use the appeal of robotics and gaming to introduce all your students to coding

CoderZ is a solution developed to enable schools and educators to engage students with hands on STEM.

CoderZ is a cloud based application that combines the learning of coding and virtual robotics together with curriculum. CoderZ includes classroom management tools and extensive teacher resources.

The solution empowers all students to learn STEM. Students learn how to code and operate virtual robots guided by a step-by-step instruction and gamified missions completely online. No need for expensive hardware or specialized training.

CoderZ is classroom ready, designed for teachers, and school friendly. The courseware can be teacher-led, self-paced or used in flipped classroom.
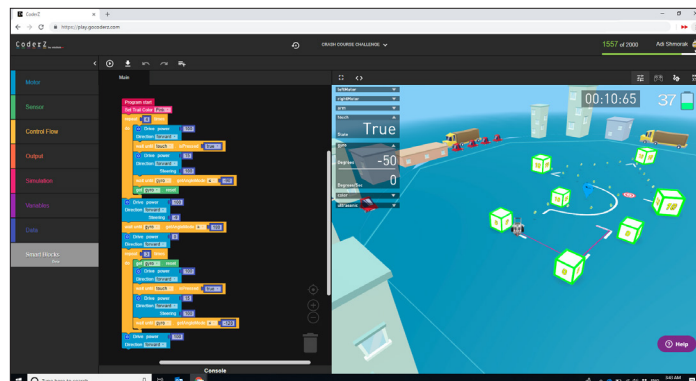
Robotics is a great way to learn STEM. It's interdisciplinary and fun! So why aren't all students learning with robots?

Because traditional robotic programs are expensive and require instructors with specialized knowledge. As a result, 99% of students never get their hands on a robot

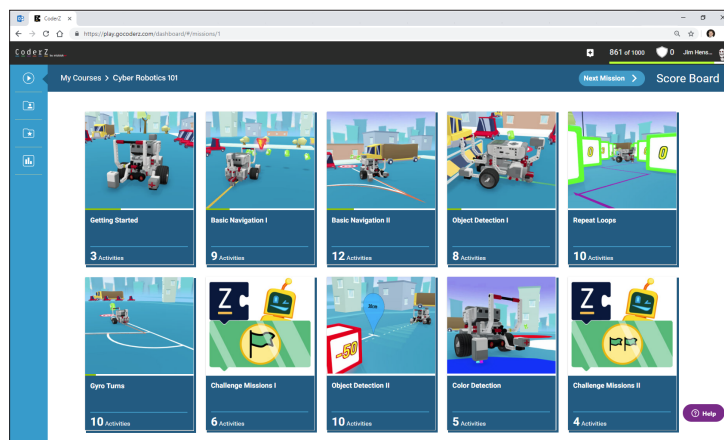## Cyber Robotics 101 powered by CoderZ

Cyber Robotics 101 is a flexible learning program for educators to introduce students to the core concepts of code development and robotics. In this course, students will learn engineering concepts like mechanics, navigation, sensors and more while being introduced to computer science fundamentals like commands, variables, conditional logic, loops, smart blocks/functions and more.

Level: Middle School (5 – 8th Grade). No previous knowledge is needed.

Length: 15 hours of courseware and programming exercises

Give students an in depth look at STEM and cyber robotics using all the available teacher resources:

- ✓ Teacher's guides
- ✓ Presentations with speaker notes
- ✓ Course Progress control
- ✓ Pre / post assessments
- ✓ Progress heatmaps and student reports
- ✓ Professional Development

Cyber Robotics 101 Course Description

Cyber Robotics 101 is a flexible learning program for educators to introduce students to the core concepts of code development and robotics.

The course comprises of 15 sessions covering multiple STEM and coding topics. Designed in sessions that fit into 1 hour lessons, the curriculum duration may vary depending on students previous experience, the time they invest in class and at home, and the time the teacher spends on theoretical subjects in class. The teacher login allows the educator to control student progress by setting the availability of program segments for students.

Students will learn about:

- Code structure
- Motor control
- Variables
- Inputs and outputs
- Conditional logic
- Loops
- Functions

Lesson Format:

Cyber Robotics 101 is a project-based curriculum with course guides delivered in competency units. Each unit consists of instructor-led or self-paced tutorials, missions-based practice activities, classroom discussions and assessments.

The course is documented in detailed lesson plans including:

- Learning objectives
- Pacing guide
- Teacher resources
- Slides
- Tutorials
- Articles
- Tips

The curriculum includes lesson missions and activities aligned with objectives. The teacher has access to Mission solutions

What's Included with Cyber Robotics 101	
CoderZ Platform	Classroom, School or District license (24, 100 or 1000 seats)
Curriculum	~15 hours of tuition and exercises
Missions	Over 90 Activities
Teacher Login	Yes
Class Mgmt	Yes
Curriculum Style	Self-paced or Instructor Led
Progress reports	Visual progress heatmaps per class, individual student reports
Teacher Guides	Yes
Lesson Plans/Pacing Guide	Yes
Mission Solutions	Yes
Online Support	Yes
COPPA Compliant	Yes

Course Outline

■ **Session 1 - Intro to STEM and CoderZ**
Overview of STEM and first steps in CoderZ learning environment.

■ **Session 2 - Basic Navigation I**
Learn about drive systems and how to navigate your robot using computer code.

■ **Session 3 - Basic Navigation II**
Learn about drive systems and how to navigate your robot using computer code.

■ **Session 4 - Object Detection I**
Learn how to use the Robot's touch sensor for autonomous navigation using basic coding blocks.

■ **Session 5 - Repeat Loops**
Learn how to code more efficiently with the Repeat loop.

■ **Session 6 – Gyro Turns**
Learn to make accurate turns using the Gyroscopic sensor.

■ **Session 7 - Gyro Reset**
Learn how to make accurate turns using data from the Gyroscopic sensor and use of reset gyro

■ **Session 8 - Domino Creations**
Time to use all your creativity and imagination together with all you've learned so far and take on a fun challenge.

■ **Session 9 - Challenge Missions I**
Apply all you've learned so far and take on an advanced challenge that puts your skills to the test.

■ **Session 10 - Object Detection II**
Learn how to avoid obstacles by sensing them from afar using the Ultrasonic sensor.

■ **Session 11 - Color Detection Sensor**
The robot can detect colors on the floor and use them to make better decisions.

■ **Session 12 - Challenge Missions II**
More advanced challenges to puts students' skills to the test.

■ **Session 13 - Object Manipulation**
Control the robot's arm to interact with objects in the scene and solve complex challenges

■ **Session 14 - Decision Making**
Use sensors so your robot makes informed decisions in real time

■ **Session 15 - The Ultimate Challenge**
Implement all you've learned in this series of complex challenges

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Start working with CoderZ now! Visit **GoCoderZ.com** or contact us at **CoderZ@intelitek.com**

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