

G-CODERZ CYBER ROBOTICS 101



www.gteceducation.com.sg

Course Overview

The Cyber Robotics 101 will empower the students with the basics of coding and robotics, an exciting interdisciplinary STEM field. This course provides online simulation, visual code editor, embedded content, class management and more. The course comprises of 15 sessions covering multiple topics including navigation, touch, gyro, ultrasonic and colour sensors, loops and more.

Entry Requirement : Basic Computer Knowledge

Course Duration : 15 hrs.

Mode of Training : Face to Face Training

Course Content

Module 1: Intro to STEM & G-CoderZ

- Understand the meaning of STEM, and how the subjects are integrated.
- Have a basic comprehension of what robots are.
- Analyze technological systems based on their inputs and outputs.
- Login to G-CoderZ and complete basic navigation missions.

Module 2: Basic Navigation I

- Identify the key components of a drive system.
- Explain how the virtual robot can drive.
- Use computer code to drive the virtual robot around.
- Explain how to do various turns by changing parameters in their code.

Module 3: Basic Navigation II

- Identify the key components of a drive system.
- Explain how the virtual robot can drive.
- Use computer code to drive the virtual robot around.
- Explain how to do various turns by changing parameters in their code

Module 4: Object Detection I

- Have a basic understanding of what sensors are used for.
- Know what sensors are used with our virtual robot.
- Differentiate between robotic input and output processes.
- Understand how to code a combination of sensor-related blocks and navigational blocks.

Module 5: The Repeat Loop

- Define what a loop is.
- Comprehend what a repeat loop is, what it does, and how it works.
- Create even more complex programs with just the drive block and loops.

Module 6: Gyro Turns

- Identify the purpose and function of a gyro sensor.
- Understand what rotational speed is.
- Apply the gyro sensor and its accompanying commands to a G-CoderZ program.
- Create a program in which the robot completes accurate turns using the robot's gyro sensor.
- Understand the effect of speed on accuracy of turns.

Module 7: Gyro Reset

- Identify the purpose of resetting the gyro sensor.
- Understand the effect of rotation speed on the cumulative loss of accuracy.
- Apply the gyro reset block to a G-CoderZ program.
- Create a program in which the robot completes accurate turns using the robot's gyro sensor, and gyro reset block.

Module 8: Domino Creations

- Do the mission Domino Trail.

Module 9: Challenge Missions I

- Test the student's understanding and ability to code virtual robots at a basic level.

Module 10: Object Detection II

- Identify the purpose and function of the ultrasonic sensor.
- Apply the ultrasonic sensor and its accompanying commands to a G-CoderZ program.
- Create a program in which the robot measures distances and avoids obstacles through use of the ultrasonic sensor.
- Be able to combine other sensors and commands of the robot with the use of the ultrasonic sensor.

Module 11: Color Detection

- Identify the purpose and function of the color sensor, focusing on Color ID readings.
- Apply the color sensor and Color ID commands to a G-CoderZ program.
- Navigate missions according to various colors throughout the scene.

Module 12: Challenge Missions II

- Test the student's understanding and ability to code virtual robots at a basic level.

Module 13: Object Manipulation

- Learn to control the arm using rotateTo block.
- Set the correct angle to lift or lower the arm.
- Use the arm to grab and move objects.
- Use the arm to flip switches on and off.

Module 14: Decision Making

- Understand the structure of an If statement.
- Be able to set conditions based on data from sensors.
- Add Else option to the If block.
- Follow a line using a basic If statement.
- Know why, when and how to use a Repeat Forever loop in conjunction to an If block.

Module 15: Challenge Missions III (Conclusion Challenges)

- Test the student's understanding and ability to code virtual robots at a basic level.

Company Profile

<p>What We do :</p>	<p>G-TEC Computer Education Centre is an Information Technology company in the field of Software Training, Technology Resourcing and Knowledge Consulting. We provide Corporate Training, Project Training, and Customized Training, One to One trainings for professionals, individuals and students.</p>
<p>Who are our Customers :</p>	<p>We have special teaching methodologies to train people in different categories ranging from corporate clients to school level students. Over 900000 students are certified by G-TEC all over the world. We have the privilege of working with some of the most well-known companies in the world.</p>
<p>Where we are :</p>	<p>G-TEC Computer Education Centre is the largest computer education networks with more than 510 centers all over the world and corporate office in Singapore. We are operating in Mexico, Qatar, India, Dubai, Singapore, Kuwait, Srilanka and Iran.</p>
<p>Our Goal and Focus :</p>	<p>Our aim is to make IT education affordable to all sections of society through various projects associating with government's quasigovernment public and private company to reach each and every corner. Our ultimate goal is to achieve cent percentage computer literacy. We are committed to provide 100% quality training to all; our focus is to provide Quality Education World Wide.</p>

Our Location



Nearest MRT: Dhoby Ghaut-Exit A / Little India-Exit A/ Bencoolen-Exit B

Bus Services: 64, 65, 131, 139, 147, 166, 857

Nearest Bus Stop: Peace Centre, Stop ID: 07011

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