



CSARC
COMPUTER SCIENCE &
ROBOTICS CERTIFICATION

csarc.org

GET FUTURE CERTIFIED

International certification standards
for coding and robotics



STEM EDUCATION TODAY

- **No Standardised Benchmark:** The market is flooded with fragmented curricula. We are all teaching the same things differently.
- **Meaningless Credentials:** Most certificates are issued to students for attendance, not actual technical mastery.
- **The Portfolio Dilemma:** Parents, schools, and admission panels (DSA/EAE) have no objective way to verify a student's real capabilities. Contrast that with grade examinations in music, dance, and martial arts.
- **Evolving Landscape:** Technology moves fast. A certification in tech-based platforms should progress with real world developments.



THE INDEPENDENT STANDARD

WHAT WE OFFER

- **Progressive Framework:** A structured, multi-tier testing system (Grades 1–3) mapping core competencies across commonly used STEM platforms.
- **Tamper-Proof Verification:** Every certificate is backed by secure blockchain verification, transforming a child's coding journey into an immutable, credible academic asset.
- **Ecosystem Value:** By partnering with schools and industry, we turn skills in technology into globally recognized credentials for student portfolios.



CSARC X IDE SERIES 2026

Certification Exam sessions open for registration

- \$20 per student for pre-booking on registration portal. \$30 per student for walk-in registration.
- Usual Price: \$135 per student
- 2 hours test with 30 mins review



Certification in LEGO Robotics (Block Based)



Certification in Python



[View Digital Credential](#)

CERTIFICATION IN LEGO ROBOTICS (SPIKE Prime)

Exam Format

- Theory MCQs
- Robot Building
- Robot Programming

Full Score: 25 marks

Score Requirement	Certificate Tier
≥ 13	Pass
≥ 16	Merit
≥ 20	Distinction
≥ 23	High Distinction

Equipment:

1. Bring your own SPIKE Prime robot set
2. Laptop/PLD device with SPIKE software

Limited SPIKE Prime sets available on loan

Grade 1

Programming Theory	
1.1	Usage of Move Tank blocks to make precise movement • Movement by motor degrees/rotations and time Understand difference between distance and speed
1.2	Move tank blocks for precise turns • Turning on one wheel • Turning in a wide arc • Turning on the spot
1.3	Usage of If-Else (Switch Block) • Single sensor/motor/button logic condition • Logic operators: >, <, =
1.4	Usage of Conditional/Infinite loop • Single sensor/motor/button logic condition • Logic operators: >, <, =
Robot Building	
2.1	Constructing a LEGO robot with 2 motors • Scores will be awarded as per construction rubrics
2.3	Mounting sensor attachment • Sensor has to be mounted at appropriate location and orientation on the robot • Sensor has to be mounted securely and not be loose / shaky
Practical programming	
3.1	Precise motor movement paths (Hardcoded)
3.2	Line following with single colour sensor • Usage of single light sensor to follow a line accurately
3.3	Distance/Ultrasonic Sensor • Usage of distance/ultrasonic sensor to detect objects • Usage of If-Else block
3.4	Force/Touch Sensor • Usage of force/touch sensor to detect objects • Usage of If-Else block

Grade 2

Programming Theory	
1.1	Usage of Move Tank blocks • "Off" mode for motor braking • "On" mode for continuous looped movement
1.2	Usage of nested If-Else conditional structure • Sensor/motor/button logic condition • Logic operators: >, <, =
1.3	Usage of single conditional loop • Single sensor/motor/button logic condition • Logic operators: >, <, =
1.4	Usage of delays (Wait Block)
Robot Building	
2.1	Constructing a LEGO robot with 2 motors • Scores will be awarded as per construction rubrics
2.3	Non Motorised Grabbing Device/Attachment • Building grabbing device to correct dimensions to capture objective block • Mounting at appropriate height
Practical programming	
3.1	Line Following With 2 Light/Colour Sensors • Movement at appropriate speed to ensure accuracy • Following line for a certain time/distance using conditional loops • Navigation of Junctions
3.2	Movement with Conditional Loops • Forward or turning movement that will stop based on sensor conditions

CERTIFICATION IN PYTHON

Exam Format

- Each grade examination will wholly consist of programming questions across a range of topics as set out in the syllabus.
- No reference to other material such as online/offline resources and tools will be allowed during the examination.

Full Score: 25 marks

Score Requirement	Certificate Tier
≥ 13	Pass
≥ 16	Merit
≥ 20	Distinction
≥ 23	High Distinction

Equipment:

- Laptop/PLD device with Python IDLE installed

Grade 1

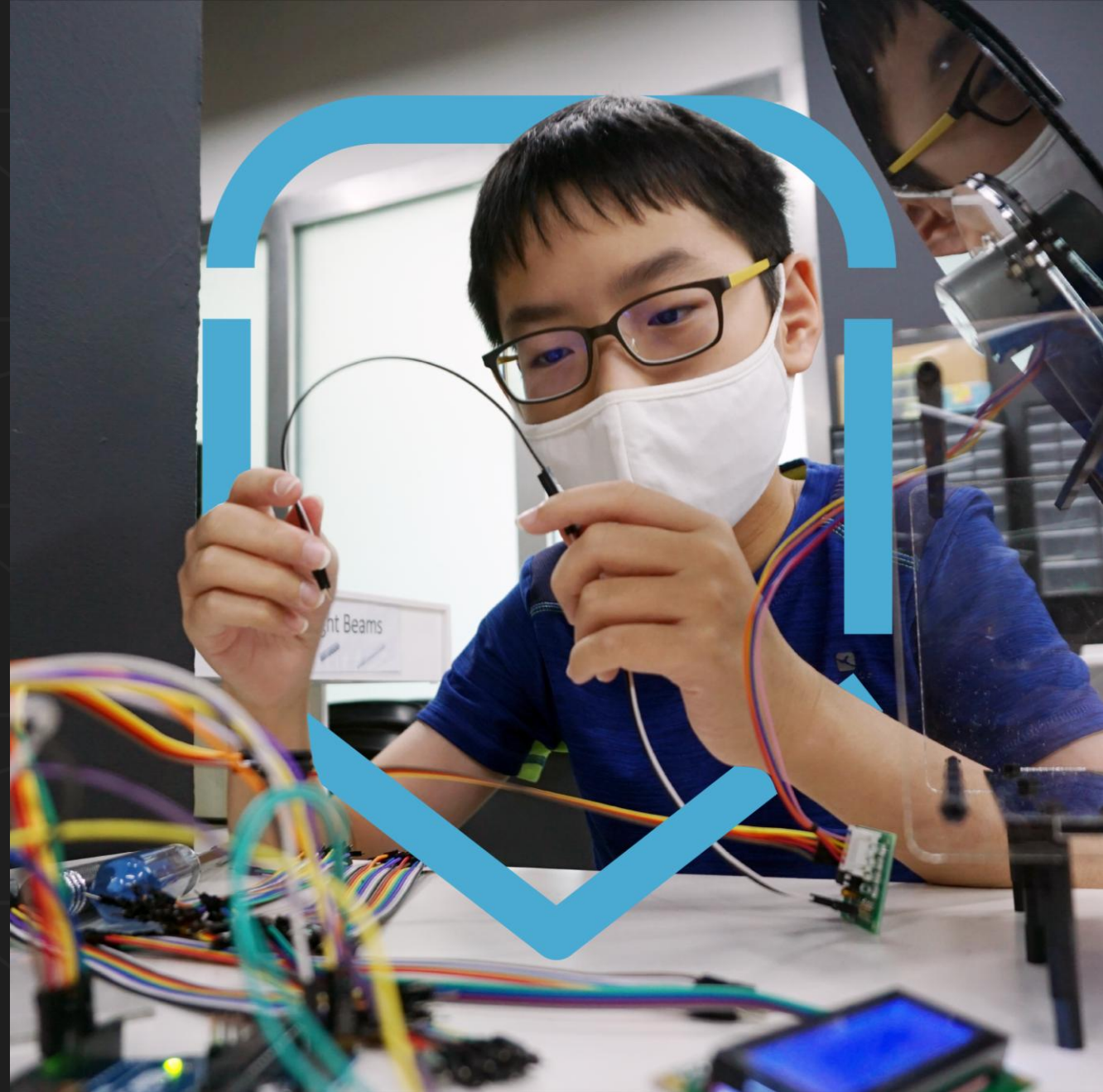
Programming Concepts	
1.1	Executing programming operations in sequence - Print statements - Mathematical operators (addition, subtraction, multiplication, division, exponentiation, floor division, modulo) Initialising and modifying variables - Variable name rules
1.2	Data Types - Understand differences in data types (integer, float, string, boolean, list) - Understand how operators behave differently on different data types - Data type conversion
1.3	User Input - Prompt user to input information - Perform data type conversion on user input
1.4	Selection - Understand how to use If, Elif, Else statements Comparison Operators - Usage of greater than, less than, and equality operators Logical Operators - Usage of AND, OR, NOT operators
1.5	Repetition (While Loop & For Loop) - Usage of loops to iterate and increment counter variables - Usage of break to terminate while loop
1.6	String Operations - Referencing elements of string by index - Iterating through elements of string - String slicing via index
1.7	List Operations - Referencing elements of string by index - Iterating through elements of string - List operations: extend(), append(), pop(), remove(), len(), sort(), join()

Grade 2

Programming Concepts	
1.1	Nested List - Accessing nested list elements by index - Iterating through nested list elements using for loop
1.2	Formatted String Literals - Usage of f-strings to print out variables - Usage of formatting flags to format variables for print
1.3	Functional Programming - Writing user defined functions with input arguments - Usage of function return
1.4	File Operation - Creating and writing to text files - Appending data to pre-existing text files - Reading text files String Operations - Usage of strip() and split()

CERTIFICATION EXAM REGISTRATION

- \$20 per student for pre-booking on IDE Series registration portal: <https://reg.ideseries.org>
- \$30 per student for walk-in registration during IDE Series competition day
- Test Duration: 2 hours
- Test Timing: To start any time between 12.30pm to 2pm
- Test Venue: At competition hall (check with registration counter)
- Contact: sg@ideseries.org



CERTIFICATION EXAM REGISTRATION

For IDE Series participating schools — CSARC
Promotion:

- Arrange CSARC Test session at your school at \$30 per test student
- Minimum 10 students per test session
- Valid till 30 Nov 2025
- Contact: sg@ideseries.org

