

# ABB's Globally Recognized STEM Certification and Curriculum - IRC5 Industrial Material Handling



The Globally Recognized STEM Certification Program is exclusive to ABB and is offered to qualifying educational institutions.



ABB's Globally Recognized STEM Certification equips and certifies educators to effectively implement, teach, and certify students by using active learning to provide real-world, hands-on examples and interactive labs to boost engagement and student success. Our comprehensive course curriculum supports educators in teaching robotics STEM education.

### Program Benefits

- Students can present this certificate at future workplaces globally, which means that it is valid even when they relocate for work
- Provides a strong foundation in STEM
- Obtain IACET recognized robot training from ABB's certified instructors
- ABB donates 100 Premium RobotStudio licenses with access to all PowerPacs to schools to help drive technology

### Course Curriculum

64 hours of comprehensive curriculum designed for educators to successfully teach their classes

Curriculum materials include:

- Instructor materials with answer keys
- Student workbook
- Certification exams and practicums

### IRC5 Industrial Material Handling Program Teacher Certification Requirements

1. Programming 1 - complete ABB course, or test out of the course with a score of 80% or better on the globally recognized STEM certification online exam (step 3).
2. RobotStudio 1 – complete ABB course, or test out of the course with a score of 80% or better on the globally recognized STEM certification online exam (step 3).
3. Successfully pass with an 80% or better the globally recognized STEM certification online exam.

All certificates are issued directly from STEM.org.

### Student Certification Requirements

Note: Teacher must complete the teacher certification process from ABB above in order for student to be eligible to become certified.

1. Successfully attend and complete the ABB Core Course materials taught at their school by the certified teacher
2. Successfully pass with an 80% or better the final certification exam

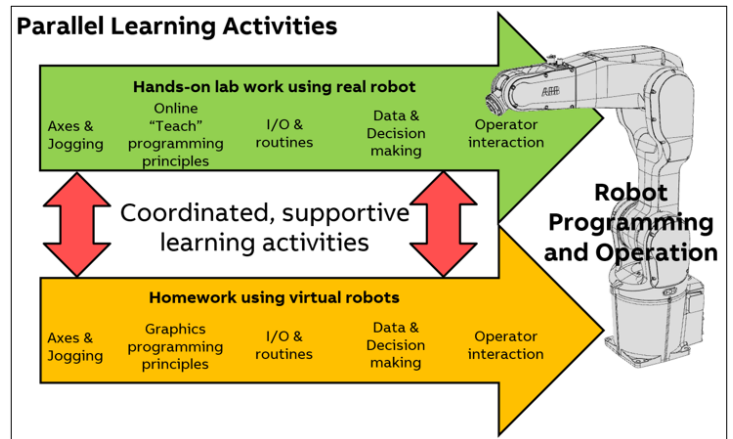
## Instructor Materials

- Course syllabus that can be customized
- Course overview, learning objectives and introductions for each unit, organized by topic to provide pacing flexibility
- Lab exercises with answer keys – provided as word documents allowing for modifications based on equipment/needs
- Assessment quizzes with answer keys
- Cumulative certification assessments - mid-term and final with answer keys

## Student Materials

- Course overview and learning objectives
- Detailed content information with a lot of graphics
- Lab exercises

## Curriculum Details



- Topics covered include:
  - o Introduction to Industrial Robotics
  - o Industrial Robot Safety
  - o Robot System Overview
  - o Introduction to Jogging
  - o Robot Calibration
  - o Introduction to Programming with RAPID
  - o Creating a RAPID Program
  - o Creating Circular Motion
  - o End of Arm Tooling (EOAT)
  - o Working with Inputs and Outputs (I/O)
  - o Material Handling
  - o Structured Programming
  - o Cartesian Coordinate System Basics
  - o ABB Coordinate Systems
  - o Working with WorkObjects
  - o Working with Program Data
  - o Program Flow
  - o Operator Communications
- Interactive tutorial-style materials covering RobotStudio featuring extensive hands-on tutorial exercises. Topics covered include:
  - o RobotStudio Introduction
  - o RobotStudio Basic Operation
  - o RobotStudio Pack and Go Files
  - o RobotStudio Teaching a Program
  - o RobotStudio Graphical Programming Introduction
  - o RobotStudio Axis Configurations
  - o Graphical programming with AutoPath
- Hands-on lab activities on an ABB industrial robot
- Library of illustrated step-by-step procedure sheets covering common robot programming and operating procedures.
- Student learning assessments including quizzes and exams with keys.
- PowerPoint presentations that link important content material to the robot content and lab activities
- RAPID instruction documentation for use as a resource for students.



Scan the QR code shown to join our academic network:

- Learn more about development and product updates
- Participate in discussions on market trends
- Share projects your school is working on using ABB robots
- And more!

Click here to view the education website:

<https://new.abb.com/products/robotics/service/training/abbstemusa>

ABB Ltd.  
For more information about our program please contact: Karin Polasek  
Inside Sales Representative  
Email: Karin.G.Polasek@us.abb.com  
Call: +1 248-391-8683

[abb.com/robotics](http://abb.com/robotics)

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB AG. Copyright © 2023 ABB. All rights reserved.