

Robotics & Materials Handling

SCORBOT-ER 4u

Robotics and Materials Handling courses features the SCORBOT-ER 4u robotic system and accessories such as a conveyor belt, rotary table, parts feeder, as well as I/O devices such as an experiment table, photoelectric sensor and microswitches.

Course Information

Type

Robotics and Materials Handling (RMH) 1	Lab
Robotics and Materials Handling (RMH) 2	Virtual and Lab
Languages	English
Hours of instruction per course	15

Robotics & Materials Handling 1

In Robotics and Materials Handling 1 students work with SCORBASE for Controller-USB software to develop and write robot programs for manipulating objects and other automated tasks.

Course Outline

- Introduction to Robotics
- Robotic Control Software
- Recording Robot Positions
- Writing and Running a Robot Program
- Cartesian Coordinates
- Inputs and Program Jumps
- Outputs
- Joint and XYZ Coordinate Systems
- Relative Positions
- Loops, Polling, and Counters
- Subroutines
- Contact and Non-Contact Sensors
- Servo Control of the Conveyor
- I/O Control of the Conveyor











Activity 1: Robotics - Activity 1: Robotics

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Activity 1: Robotics

In Robotics and Materials Handling 1 Hardware (Lab), you learned the basics of programming a robot through various means to perform various tasks. The Robotics and Materials Handling 2 (Virtual) module will introduce you to further aspects of the ER 4u robot. Additionally, this module will allow you to explore simulated robotic programming using an online simulation of the ER 4u robot.

This activity includes the following topics:

- Applications of Industrial Robots
- Using Simulation Software



Robotics & Materials Handling 2

In Robotics and Materials Handling 2 Students work with RoboCell, a 3D-solid modeling robotic simulation software, to program and operate the SCORBOT-ER 4u robot.

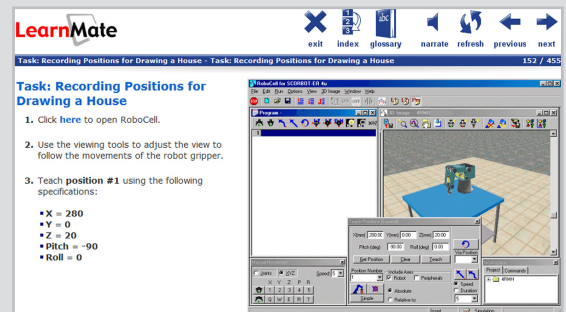
Course Outline

- Basic Robotic Programming Tools
- Manipulating Blocks Project
- Programming the Robot to Execute Circular Movements
- Drawing a House
- Roll and Pitch
- Block Alignment Project
- Feeders and Templates
- Peripheral Devices
- Linear Slidebase Project
- Programming Using Encoder Values
- Conditional Branching
- Programming with Conditional Branching
- Analog Inputs and Outputs
- Programming a Sorting System Project

Robotics & Materials Handling SCORBOT-ER 4u (continued)

Robotics and Materials Handling include LearnMate®, Intelitek's innovative e-learning platform. Self-paced interactive LearnMate content may be deployed stand-alone or through the robust learning management system (LMS). The LearnMate e-learning suite provides everything needed for the ultimate blended learning experience:

- SCORM-compliant interactive content
- Anytime, anywhere accessibility
- Student and class management
- Grade tracking
- Skill/competency reporting mapped to national academic skill standards



Ordering Information

Curriculum

Robotics Materials Handling I with ER4u, LM course 77-8082-0000

Robotics Materials Handling II with ER4u, LM course 77-8083-0000

Hardware & Hardware Bundles

(see hardware data sheets for details)

SCORBOT-ER4u Robotic Arm	00-0413-0000
SCORBOT-ER4u, Introductory Package	ROB-ER4U-PACK
SCORBOT-ER4u, Standard Package	ROB-ER4U-STND
SCORBOT-ER4u, Advanced Package & Quality Control Station	
ROB-ER4U-ADV	

#? Projects

Yo-Yo	10-7001-1001
Shape Sorter	10-7005-1000

Courseware Bundles

Robotics & Materials Handling I - LAB

ROB-ER4U-MAT

INCLUDES:

- SCORBOT-ER4u, Standard Package
- SCORBOT-ER4u, Advanced Package & Quality Control Station
- Robotics & Material Handling I w/ER4U
- Robotics Automation Technology Skills Project
- Robotics Automation Project Parts
- Scorbot-ER 4u Fundamentals
- Scorbot-ER 4u Advanced
- Scorbot-ER 4u Materials Handling I
- Scorbot-ER 4u Materials Handling II

Robotics Automation Project Parts

RAT-ER4U-ACC1

- LM7 Content, Robotics & Automation Project
- Assembly, Project, Competition Sensor Box
- Assembly, Project, Pneumatic Block Feeder, 12V
- Assembly, Project, I/O Interface
- Assembly, Project, Components For Workcell
- Assembly, Project, Power Supply, 12V
- Assembly, Project, E-Stop/Light Stack
- Assembly, Project, Energy Chain w/Robot Mount
- Install Guide Robotic Workcell

Robotics Automation Technology Skills Project

RAT-ER4U-1000

- RAT-ER4U-ACC1 Project bundle
- SCORBOT-ER 4u
- LSB 1.0m, Belt, TT
- Teach Pendant
- Linear Conveyor-24V w/ Power Supply and Sensor



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