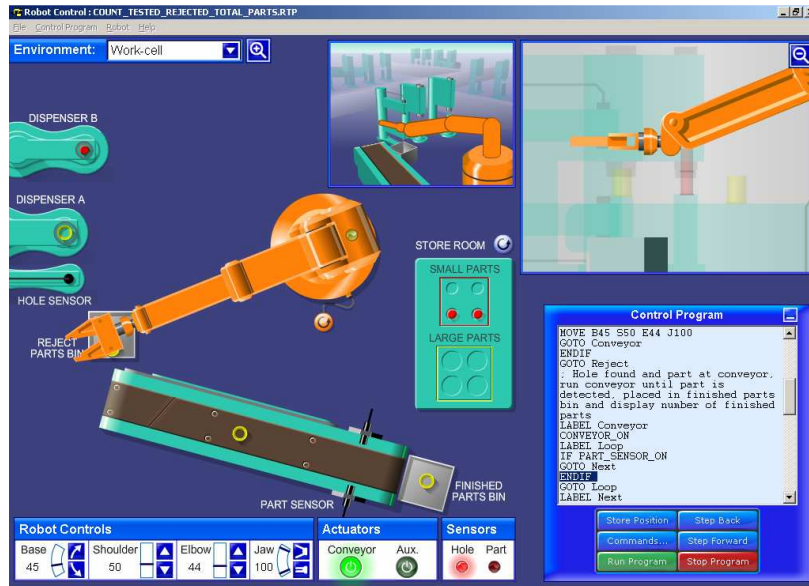


Robotics and Automation (Engineering Unit)



Activities include:

- Manually control a robot.
- Use a flowchart to write a computer program in BASIC.
- Use the input from a sensor with the IF command in a BASIC program.
- Identify the purpose of belt drives.
- Write programs for open and closed loop control systems.
- Identify different types of sensors used in the work-cell.
- Identify economic and practical reasons why robots are used in industry.
- Write a program to control a robot using inputs from a keyboard.
- Identify how Computer Integrated Manufacturing (CIM) can be incorporated into manufacturing systems.

Each lesson is designed to meet a number of performance objectives. These include academic, technical and occupational objectives. The lessons are written in such a way as to enable a student to attain the performance objectives, with continuous assessment activity questions and assessment test questions linked to these in order to provide a measure of true competency.

The performance objectives are used by the ClassAct or ClassCampus management systems to generate a comprehensive portfolio of student reports.

The items supplied with this instructional unit include:

- On-screen Student Curriculum CD
- Instructor's Guide

Additional items required:

- ST240/40 Robotics and Automation
- Computer

This is one of a series of instructional curriculum units designed specifically to operate within a lockstep environment where all students carry out assignments simultaneously within the same topic area. It can be run independently, or as an ideal addition to our ScanTEK Technology Program.

This unit makes use of hardware supplied with the ScanTEK technology module. It includes 10 lessons of on-screen curriculum materials in an html format. These can be delivered via a LAN using our ClassAct classroom management system or via the Internet using our ClassCampus management system.

The curriculum includes continuous assessment, assessment tests and a workbook journal to create a portfolio of work during the lessons. Typical activities include hands-on investigations, problem-solving, and group projects.

Each lesson contains between one and two hours of study. A lesson typically begins with a PowerPoint presentation that provides students with background information required to complete the rest of the lesson. If used with our ClassAct SRS system, questions integrated into the PowerPoint can be tracked as each student responds on their handheld keypad.

Demonstration activities are carried out by the instructor using purpose built hardware. Students carry out hands-on activities using a software simulation of the hardware. The students also have an opportunity to verify their solutions using the hardware.

Where appropriate, research activities that include the use of multimedia explorers are also incorporated.

This instructional unit uses a unique software simulation of a robot work-cell. This enables a whole class to carry out activities in the same topic areas at the same time.

The simulator allows the student to operate a robot in a work-cell containing parts dispensers, a conveyor belt and various sensors.



The student can control the robot both manually, or by writing control programs that are run on-screen.

The simulator also includes a robot working in a Nuclear Plant.

Topic areas include:

- Manual Control of a Robot
- Flowcharts and Programs
- Sensing, Decisions and Counting
- Open and Closed Loop Control
- Transportation Around the Work-cell
- Manipulating Parts
- Industrial Robots
- Computer Integrated Manufacturing
- Pre-programmed Sequences
- Problem Solving

Module Facts

Order as:
ST240/LS/10 Robotics and Automation (Engineering)

	No.	Average time
Lessons	10	80 mins
Total		13 hours



ClassAct, ClassAct SRS & ClassCampus enabled



LJ Technical Systems
Web site: www.ljgroup.com