

# ROBOTICS

## FUNDAMENTALS OF ROBOTICS

LearnMate  
content

The primary use of robot applications in industry is to perform tasks that pose a risk to human beings, or are unpleasant or difficult for humans to perform. For example, activities in environments that pose great danger to humans, such as prospecting for underwater mineral deposits, monitoring tropical storms, and active volcano exploration, are ideally suited to robots. Similarly, robots can explore distant planets.

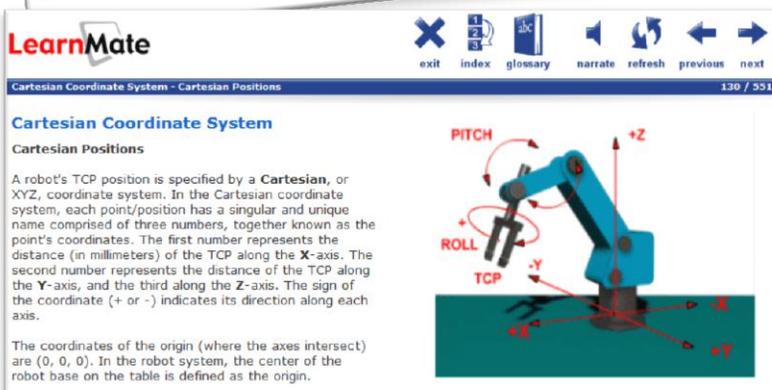
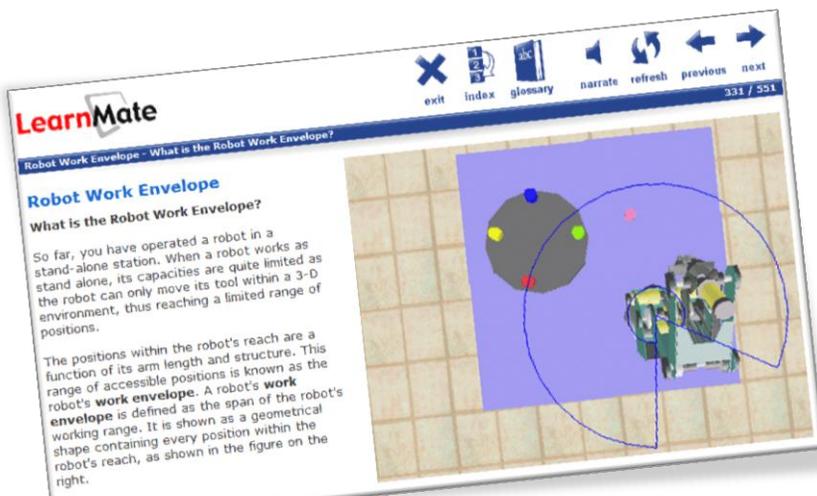
Intelitek's **Fundamental of Robotics** content modules allow students to master the fundamentals of robotics by working with a number of virtual robotic workcell applications. Using simulation and control software, students learn to program and control the robotic workcell. They also develop and write robot programs for various tasks and manipulations.

Activities challenge students to design solutions for industrial robotic applications, taking into consideration real-life industrial concerns, such as recording accurate positions, optimizing programming and increasing productivity.

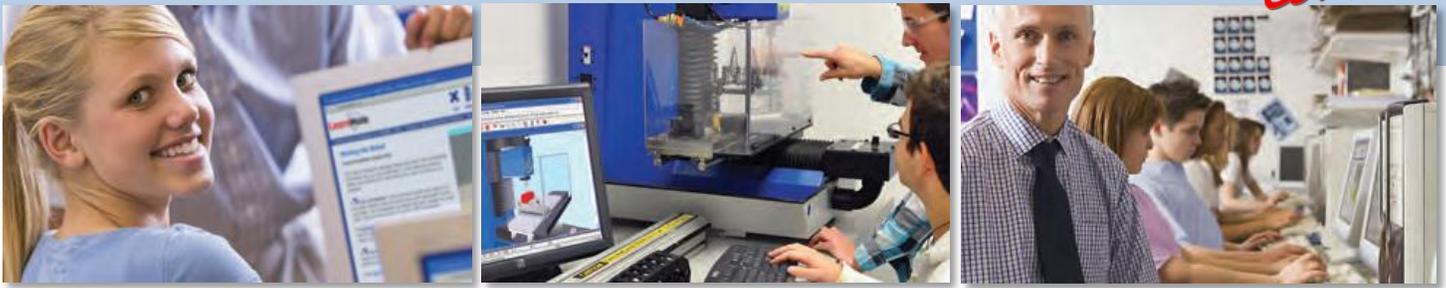


### Course Outline

- ◆ Introduction to Robotics
- ◆ How Robots Work
- ◆ Using Robotic Control Software
- ◆ Recording Robot Positions
- ◆ Programming a Simple Pick and Place Task
- ◆ Absolute and Relative Positions
- ◆ Basic Robotic Programming Tools
- ◆ Block Alignment Project
- ◆ Feeders and Templates
- ◆ Peripheral Devices
- ◆ Linear Slidebase Project
- ◆ Encoders
- ◆ Roll and Pitch
- ◆ Programming the Robot to Execute Linear Movements
- ◆ Programming the Robot to Execute Circular Movements
- ◆ Final Project: Drawing a House



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Content is the most critical component of any successful e-learning program. The quality of the content is instrumental in driving the student's motivation and knowledge retention. To be truly effective, educational training must provide hands-on experience. LearnMate® Content modules equip students with the technological knowledge, skills and understanding needed to prepare or retrain them for careers in technologically advanced mechatronics, industrial and IT environments.

## LearnMate® Content offers:

- ◆ **Activity-based Learning:** All modules are designed to deliver information in small, easily assimilated units. Each activity clearly defines learning objectives, related competencies and skills, and self-check assessments as well as background and theory. Detailed procedures, including a list of required materials, are given in the form of tasks.
- ◆ **High-level Media Enrichment:** Wherever possible, content is presented graphically rather than textually. Each module is rich in high-quality graphics, animations, audio and “show me” videos that utilize complex software. Every media file is created specifically to enhance content and formatted for swift Internet delivery.
- ◆ **Interactivity:** Learning activities are highly interactive and contain a wide range of animations to demonstrate a real world application or process or to highlight a topic. Interactive 3D animations based on industrial hardware run according to the hardware's rules of logic. Interactive screencams, based on existing software packages, simulate actual software operation.
- ◆ **Assessments:** All modules include computer-based tests, including pre- and post-tests, as well as self-check assessments. Study exercises and quizzes gauge and enhance retention and include numerous types of interactive questions (e.g., multiple-choice, multiple-multiple choice, true/false, fill-in-the-blank, fill-in-the-table, drag and drop ordering, hotspot, open essay, matching). LearnMate's advanced **LM Assessment** utility lets instructors modify and add assessments.
- ◆ **Authoring:** LearnMate content is comprehensive, detailed and attractive to the user. Moreover, **LM Author**, LearnMate's integrated authoring tool, empowers instructors to add new content or update and reorganize existing content.

## Why LearnMate®?

- ◆ An ever-growing technology catalog of SCORM modules for efficient and flexible knowledge management and deployment.
- ◆ Highly interactive simulations and animations for effective virtual hands-on learning experiences.
- ◆ Frequent assessments to reinforce understanding and gauge retention. All learning objectives and questions can be linked to industry competencies.
- ◆ Robust Web-based learning management system (LMS) for managing all aspects of online learning events and experiences.
- ◆ Solutions for asynchronous, synchronous and blended e-learning systems.

### About intelitek

*Intelitek's mission is to improve student education by transforming the classroom in schools, colleges, universities and industrial training. Intelitek seeks to engage students, empower instructors and support administrators through our proven innovations in curriculum, lab equipment, classroom management technology, assessments, professional development and teacher training. Intelitek is committed to putting the best technology in the hands of educators to prepare a wider range of students with career- and college-ready skills and the desire and ability to use such skills to improve the world around them.*

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