User Manual: NexBot Robotics Maintenance Training Course 912-001

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1. Safety Information

READ ALL SAFETY INSTRUCTIONS BEFORE OPERATION. Failure to follow safety procedures may result in serious injury or equipment damage.

DANGER: During any on-site practical labs, never enter an active robot work cell. All energy sources must be de-energized and placed in a zero-energy state using approved Lockout/Tagout procedures before performing any physical tasks.

WARNING: Always wear the specified Personal Protective Equipment (PPE), including ANSI-rated safety glasses and protective footwear, when participating in hands-on training activities. Failure to do so can result in serious injury.

WARNING: The procedures learned in this course are for training purposes. Always refer to the official, most current service manual for a specific robot model and serial number before performing maintenance on live production equipment.

CAUTION: The virtual lab environment simulates robot behavior but cannot replicate all real-world physical forces and hazards. Do not become complacent with safety protocols when transitioning from the virtual environment to physical hardware.

NOTICE: All course materials, including videos, manuals, and software, are the intellectual property of NexBot Robotics. Unauthorized recording, distribution, or reproduction is strictly prohibited and may result in legal action.

2. Product Overview

The NexBot Robotics Maintenance Training Course 912-001 is a foundational program designed to equip maintenance personnel and technicians with the essential skills to service and maintain NexBot industrial robots. This course provides a deep understanding of robot mechanics, electrical systems, and software diagnostics, enabling your team to maximize uptime and operational efficiency. The curriculum focuses on practical, hands-on learning to ensure that participants can confidently apply their knowledge in a real-world production environment. Over the intensive 3-day (24-hour) duration, students will engage in a blended learning experience of classroom theory and extensive lab sessions using actual NexBot robotic hardware. Key topics include system architecture, safety circuit protocols, preventive maintenance schedules, and effective troubleshooting methodologies. Participants will learn to perform critical tasks such as mastering and calibration, system backups and restores, and interpreting system error logs to quickly identify root causes of faults. The hands-on labs cover procedures for common component replacement, ensuring technicians can execute repairs correctly and safely. This training is ideal for maintenance staff, automation engineers, and system integrators responsible for the upkeep of robotic workcells in applications like automated assembly, material handling, and machine tending. By completing this course, your team will be better prepared to reduce unplanned downtime, improve the mean time to repair (MTTR), and extend the service life of your valuable automation assets. The course is taught by certified NexBot instructors in a small-group setting, with a maximum class size of 8 students to ensure personalized attention and ample time with the equipment. Successful completion of the course provides participants with a NexBot Robotics Level 1 Maintenance Certification.

3. Getting Started

1. Course Overview and Objectives

Welcome to the NexBot Robotics Maintenance Training Course 912-001. This program is designed to equip you with the skills to perform routine maintenance, diagnose common system faults, and safely interact with NexBot industrial robots. Upon successful completion, you will earn a Level 1 Maintenance Certification.

2. Navigating the Learning Portal

The main navigation menu provides access to all course components. 'Modules' contains your learning path, 'Grades' shows your progress,

'Virtual Lab' launches the simulator, and 'Help' connects you with technical and instructor support. Always start from the 'Modules' view to see your next task.

3. Understanding the Curriculum Flow

The curriculum is structured into sequential modules, from safety and fundamentals to advanced diagnostics. Each module consists of video lectures, reading assignments, practical virtual lab exercises, and a knowledge check quiz. You must successfully complete each component before the next module is unlocked.

4. Operation

Viewing Lecture Content

Each topic begins with a video lecture from a certified NexBot instructor. You can control playback speed, enable closed captions, and re-watch videos as needed. We recommend taking notes as you watch to prepare for the quiz.

> **Tip:** Use the 'Bookmarks' feature in the video player to save important points for later review before the final exam.

Using the Virtual Lab Simulator

The virtual lab provides a safe, interactive 3D environment to practice maintenance procedures. Follow the on-screen work instructions to complete tasks. Your performance on these tasks is automatically logged and reviewed by the instructor.

> **Tip:** Take time to explore the virtual robot beyond the required tasks. Use the 'Free Play' mode to practice jogging the arm and navigating the teach pendant menus.

Completing Quizzes and Exams

At the end of each module, you must pass a quiz to demonstrate your understanding of the concepts. The course concludes with a comprehensive final exam. You are given a limited number of attempts for each assessment.

Submitting Practical Assessments

Certain modules require you to perform a task in the virtual lab and submit the log file for instructor review. Ensure you click the 'Submit for Grading' button after completing the task. Grades and feedback will appear within two business days.

Requesting Instructor Support

If you are struggling with a concept or a lab exercise, use the 'Ask the Instructor' feature within the portal. Provide a detailed description of your question or problem. This is more effective than email and ensures your query is tracked properly.

> **Tip:** When asking about a lab issue, include a screenshot and the specific step number you are on. This helps the instructor diagnose the problem much faster.

5. Maintenance Schedule

Interval	Task	Notes
Quarterly	Review the core safety procedures module and lockout/tagout (LOTO) protocols.	Ensures safety principles remain current and top-of-mind.
Semi-Annually	Complete one of the optional 'Challenge' scenarios in the virtual lab.	Helps maintain and sharpen diagnostic and troubleshooting skills on complex faults.
Annually	Log into the NexBot support portal to read new technical service bulletins.	Keeps you informed of the latest hardware and software updates for the robots you service.
Annually	Review the official maintenance schedules for the specific robot models at your facility.	Refreshes knowledge of required service intervals and procedures.
Every 2 Years	Enroll in and complete the recertification course (NXB-CERT-912-R) to maintain an active certification status.	Certifications from course 912-001 are valid for 24 months.

6. Troubleshooting

Symptom	Possible Cause	Solution
Cannot log into the NexBot Learning Portal.	Incorrect credentials, expired password, or locked account.	Use the 'Forgot Password' link to reset your password. If you still cannot log in after 3 attempts, contact training support to have your account unlocked.
A course video will not play or is constantly buffering.	Poor internet connection, browser issue, or corporate firewall.	Ensure you have a stable internet connection. Try clearing your browser cache or using a different browser. If on a corporate network, check with your IT department to ensure our streaming service is not blocked.

Symptom	Possible Cause	Solution
The virtual lab environment is running very slowly or crashes.	The local computer does not meet minimum system requirements or has other resource-intensive applications running.	Verify your computer's specifications against the requirements in the syllabus. Close all other applications, especially 3D games or video editing software, before launching the lab.
I failed a module quiz and am now locked out.	The maximum number of quiz attempts has been exceeded.	Contact your instructor via the portal messaging system. They will review your attempts and may grant an additional attempt after you review the course material.
My practical lab submission was graded as 'incomplete'.	Not all required steps in the work instructions were completed successfully.	Read the instructor's feedback in the gradebook to see which steps were missed. Relaunch the lab and re-submit after successfully completing all required steps.
The certificate of completion is not available after finishing the final exam.	One or more previous modules or quizzes have not been marked as 'complete'.	Go to the main course page and ensure every single item has a green checkmark next to it. If an item is missing its checkmark, complete it and the certificate will become available.
A link to a technical manual in the course materials is broken.	The document may have been moved or the link is outdated.	Report the broken link immediately to the instructor or through the 'Help' portal. They will provide a direct copy of the file and correct the link for all users.

7. Technical Specifications

Parameter	Value	Unit
Country of Origin	JP	