

AI-Assisted Human-Robot Interaction Project Course

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Overview

AI-Assisted Human-Robot Interaction Project Course is a one-week foundation course for automation engineers, robotics technicians, manufacturing engineers, maintenance professionals, project teams, and safety specialists, who leave with an AI-Assisted Human-Robot Interaction Project Design and Test Plan. Participants define tasks, allocate human and robot roles, map perception and feedback, design interfaces, establish safety boundaries, test interaction performance, and plan responsible deployment. Agile Leaders Training Center provides training in AI-assisted human-robot interaction projects.

Who Should Attend

- Automation teams responsible for integrating people and robotic systems
- Robotics teams responsible for interaction functions and testing
- Manufacturing teams responsible for collaborative work design
- Maintenance teams responsible for diagnostics and safe intervention
- Project teams responsible for requirements, acceptance, and deployment
- Safety teams responsible for hazards, controls, and verification

The course assumes participants contribute to automation, robotics, manufacturing, maintenance, project, or safety work and leaves out robot programming, machine-learning model development, detailed control engineering, and formal safety certification.

Departments and Industries

The course supports human-robot interaction projects across production and service environments.

- Automation and manufacturing engineering functions
- Robotics integration and maintenance teams
- Automotive, electronics, and industrial production organizations
- Warehousing, logistics, and material-handling operations
- Healthcare technology and laboratory automation teams
- Safety, quality, and operational excellence functions

Learning Objectives

By the end of this course, participants will be able to:

- Apply task analysis to human-robot interaction requirements
- Analyze perception, feedback, interface, and situation-awareness needs
- Build human and robot role-allocation workflows
- Evaluate collaborative hazards and safety boundaries
- Use test metrics for interaction performance and trust
- Build an AI-Assisted Human-Robot Interaction Project Design and Test Plan

Course Agenda

Day 1: Interaction Context and Tasks

- Human-Robot Interaction Context Canvas
- Collaborative Task Decomposition Method
- Human and Robot Capability Matrix
- Stakeholder and Operator Needs Map
- Interaction Requirement and Constraint Register

Day 2: Perception and Interface Design

- Perception and Situation-Awareness Map
- Human-Machine Interface Design Checklist
- Operator Command and Feedback Flow
- Error, Diagnostic, and Recovery Protocol
- Trust and Workload Indicator Set

Day 3: Task Allocation and Safety

- Human-Robot Role Allocation Matrix
- Collaborative Workspace and Zone Map
- Task-Based Hazard Assessment
- Speed, Separation, Force, and Stop Control Review
- Safety Boundary and Escalation Register

Day 4: Testing and Deployment

- Interaction Test Scenario Library
- Objective and Subjective Metric Scorecard
- Operator Observation and Feedback Sheet
- Failure Mode and Corrective Action Log
- Responsible Deployment and Change-Control Plan

Day 5: Human-Robot Interaction Project Practice

- Suggested Exercise: Decompose a Collaborative Task
- Suggested Exercise: Design an Operator Interface and Feedback Flow
- Suggested Exercise: Assess Hazards and Safety Boundaries
- Suggested Exercise: Build Interaction Test Scenarios and Metrics
- Capstone Exercise: AI-Assisted Human-Robot Interaction Project Design and Test Plan

Practical Exercises

The course uses suggested activities that convert interaction needs into a reviewable human-robot project plan.

- Suggested activity: map a manufacturing or logistics task, participant roles, constraints, perception needs, and operator decisions
- Suggested activity: design commands, feedback, diagnostics, recovery routes, and situation-awareness cues
- Suggested activity: assess contact, tooling, workspace, separation, force, stop, and escalation controls
- Suggested activity: define test scenarios, performance measures, observation records, acceptance criteria, and change controls

FAQs

Who suits AI-assisted human-robot interaction project training?

AI-assisted human-robot interaction project training suits automation, robotics, manufacturing, maintenance, project, and safety teams. It assumes experience with operational processes and requires no robot programming or machine-learning development.

How does human-robot interaction project training differ from robotics programming training?

Human-robot interaction project training focuses on tasks, roles, interfaces, operator feedback, safety, testing, and deployment. Robotics programming training focuses on code, motion control, software integration, and technical implementation.

What makes a human-robot interaction task collaborative?

A collaborative task intentionally assigns complementary work to people and robots within a defined interaction process, with clear commands, feedback, workspace boundaries, safety controls, recovery routes, and performance measures.

How is human-robot interaction performance tested?

Human-robot interaction performance is tested through defined scenarios and objective and subjective measures covering task success, timing, errors, operator effort, situation awareness, interface clarity, trust, diagnostics, and recovery.

What belongs in an AI-Assisted Human-Robot Interaction Project Design and Test Plan?

The plan includes context, tasks, roles, requirements, perception, interfaces, feedback, hazards, safety boundaries, test scenarios, metrics, acceptance criteria, responsibilities, deployment controls, and change records.

Conclusion

Participants take back an AI-Assisted Human-Robot Interaction Project Design and Test Plan connecting tasks, interfaces, safety, testing, and deployment. The plan makes roles, assumptions, controls, measures, and acceptance decisions visible across teams. It supports traceable design choices, safer interaction trials, and structured improvement before operational use.

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