Training Course on Robotics and Automation for Oilfield Applications

Professional Development Training Course Outline

Category	Oil and Gas	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The rapid advancement of robotics and automation in the oil and gas industry has revolutionized operational efficiency, safety, and sustainability. Training Course on Robotics & Automation for Oilfield Applications is designed to provide oilfield professionals with the skills and knowledge required to deploy, manage, and optimize robotic systems in upstream, midstream, and downstream applications with the increasing need for intelligent systems, remote operations, and predictive maintenance.

Learners will explore how automation can reduce human exposure to hazardous environments, enhance precision in drilling, and optimize asset management. This industry-focused robotics training integrates cutting-edge technology with real-world oilfield challenges. Whether you're an engineer, technician, or decision-maker, this course equips you with practical skills in robotics integration, automation workflows, AI-driven data analysis, and field robot maintenance. Gain insights from field-specific case studies and expert instruction to master next-gen oilfield automation.

Programme Curriculum

Training Course on Robotics & Automation for Oilfield Applications

Introduction

The rapid advancement of robotics and automation in the oil and gas industry has revolutionized operational efficiency, safety, and sustainability. Training Course on Robotics & Automation for Oilfield Applications is designed to provide oilfield professionals with the skills and knowledge required to deploy, manage, and optimize robotic systems in upstream, midstream, and downstream applications with the increasing need for intelligent systems, remote operations, and predictive maintenance.

Learners will explore how automation can reduce human exposure to hazardous environments, enhance precision in drilling, and optimize asset management. This industry-focused robotics training integrates cutting-edge technology with real-world oilfield challenges. Whether you're an engineer, technician, or decision-maker, this course equips you with practical skills in robotics integration, automation workflows, AI-driven data analysis, and field robot maintenance. Gain insights from field-specific case studies and expert instruction to master next-gen oilfield automation.

Course Objectives

1. Understand the fundamentals of robotics engineering in oil & gas.
2. Analyze AI-driven automation systems in drilling and production.
3. Explore the role of robotic process automation (RPA) in field operations.
4. Apply predictive maintenance using robotic diagnostics.
5. Integrate autonomous underwater vehicles (AUVs) for subsea tasks.
6. Optimize robotics for pipeline inspection and maintenance.
7. Implement digital twin technology for oilfield simulation and testing.
8. Examine safety protocols in automated oilfield environments.
9. Understand edge computing and IoT integration with robotics.
10. Evaluate robotic arms and manipulators for high-risk operations.
11. Gain exposure to real-time data analytics in robotic systems.
12. Assess cost-efficiency and ROI of automation investments.
13. Design scalable automation strategies for remote operations.

Target Audiences

1. Petroleum Engineers
2. Drilling Supervisors
3. Automation Engineers
4. Maintenance Technicians
5. Field Operators
6. Project Managers
7. Safety Officers
8. Oilfield Technology Consultants

Course Duration: 5 days

Course Modules

Module 1: Introduction to Robotics in Oilfield Environments

- History and evolution of robotics in the oil industry
- Overview of robotic systems: ground, aerial, and underwater
- Classification and components of oilfield robots
- Introduction to robotic programming and AI integration
- Safety and regulatory considerations
- **Case Study**: Early adoption of robotics by Shell in offshore operations

Module 2: Drilling Automation and Robotic Systems

- Robotic drill floor systems
- AI in directional drilling and performance optimization
- Robotic tools for borehole stability and cleaning
- Automated pipe handling systems
- Data integration with SCADA systems
- **Case Study**: Nabors’ robotic drilling platforms

Module 3: Subsea Robotics and Autonomous Vehicles

- Autonomous Underwater Vehicles (AUVs) and ROVs
- Navigation and control systems for subsea robots
- Applications in subsea inspection, repair, and installation
- Communication systems for underwater automation
- Integration with sonar and imaging systems
- **Case Study**: BP’s use of AUVs in deepwater asset inspection

Module 4: Predictive Maintenance and Asset Management

- Role of robotics in predictive diagnostics
- Real-time monitoring and fault detection
- Sensors and AI algorithms in robotic maintenance
- Deployment strategies for robotic inspectors
- Preventative maintenance workflow design
- **Case Study**: Chevron’s predictive maintenance using robotic crawlers

Module 5: Robotic Pipeline Inspection and Leak Detection

- Internal and external robotic inspection tools
- Non-destructive testing techniques
- Robotic corrosion mapping and analysis
- Smart pigging and data acquisition
- Automated leak detection systems
- **Case Study**: ROSEN Group's robotic pipeline inspection success

Module 6: Safety & Risk Management in Automated Environments

- Human-robot interaction safety protocols
- Emergency shutdown systems and fail-safes
- Robotic hazard identification and response
- Occupational safety in automated zones
- Legal frameworks and compliance
- **Case Study**: ExxonMobil's safety policy integration with field robots

Module 7: Digital Twin & Simulation for Oilfield Robotics

- What is a digital twin?
- Creating real-time simulations for robotic systems
- Use of AR/VR in oilfield training
- Performance testing and optimization via simulation
- Lifecycle cost modeling
- **Case Study**: Equinor's digital twin use in offshore platform design

Module 8: Strategic Planning & ROI in Robotic Deployment

- Cost-benefit analysis of robotic investments
- KPI metrics for evaluating automation success
- Workforce training and change management
- Infrastructure readiness and scalability
- Funding models and innovation grants
- **Case Study**: Saudi Aramco’s ROI on robotic automation strategies

Training Methodology

- Interactive lectures led by industry experts

- Hands-on virtual labs and robotic simulations
- Case study evaluations based on real-world oilfield scenarios
- Collaborative group discussions and workshops
- Capstone project presentation and peer feedback

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now

Email: info@fineskilltrainingcenter.com | Website: www.fineskilltrainingcenter.com