Industry 5.0 & Human-Centric Manufacturing Training Course

Professional Development Training Course Outline

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

Course Introduction

Industry 5.0 represents the next evolution of industrial transformation, shifting the focus from automation-centric production to human-centric, sustainable, and resilient manufacturing systems. Unlike Industry 4.0, which prioritizes smart automation, Industry 5.0 integrates human intelligence, collaborative robotics (cobots), artificial intelligence, digital twins, and ergonomic system design to enhance productivity while prioritizing worker well-being, creativity, and personalization in manufacturing ecosystems. Industry 5.0 & Human-Centric Manufacturing Training Course is designed to equip professionals with advanced competencies in smart factories, AI-driven decision-making, human-machine collaboration, and sustainable production strategies.

As global industries move toward green manufacturing, hyper-personalization, and resilient supply chains, organizations require skilled professionals who can bridge the gap between technology and human capability. This course delivers a comprehensive understanding of cyber-physical systems, industrial AI, human factors engineering, predictive analytics, and ethical automation frameworks. Participants will gain hands-on exposure to real-world applications that redefine productivity, safety, and innovation in next-generation manufacturing environments.

Programme Curriculum

Industry 5.0 & Human-Centric Manufacturing Training Course

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Course Duration

5 days

Course Objectives

1. Master Industry 5.0 human-centric manufacturing principles
2. Understand collaborative robotics (cobots) integration
3. Apply AI-powered predictive maintenance strategies
4. Develop skills in smart factory ecosystem design
5. Implement digital twin technology in production systems
6. Enhance human-machine collaboration efficiency
7. Explore sustainable and green manufacturing models
8. Utilize industrial IoT (IIoT) for real-time optimization
9. Learn advanced ergonomics and workforce safety systems
10. Analyze data-driven decision-making in manufacturing
11. Design resilient and agile supply chain networks
12. Understand ethical AI and responsible automation
13. Improve mass customization and hyper-personalization systems

Target Audience

1. Manufacturing Engineers & Plant Managers
2. Industrial Automation Specialists
3. AI & Data Science Professionals in Industry
4. Operations & Supply Chain Managers
5. Mechanical & Production Engineers
6. Quality Assurance & Process Improvement Teams
7. Government & Industrial Policy Makers
8. Technical Trainers & Academic Researchers

Course Modules

Module 1: Foundations of Industry 5.0

- Evolution from Industry 1.0 to 5.0
- Human-centric manufacturing principles
- Role of sustainability in modern industry
- Integration of AI and human intelligence
- Smart factory ecosystem overview

- **Case Study:** German automotive plants integrating human-robot collaboration lines for flexible production.

Module 2: Collaborative Robotics (Cobots)

- Introduction to cobot technology
- Human-robot workspace integration
- Safety protocols and compliance standards
- Task sharing between humans and machines
- Productivity enhancement models
- **Case Study:** Toyota's cobot-assisted assembly line improving precision and reducing fatigue.

Module 3: Artificial Intelligence in Manufacturing

- AI-driven production optimization
- Machine learning for defect detection
- Predictive analytics in operations
- Cognitive automation systems
- Decision-support systems
- **Case Study:** Siemens using AI for real-time quality inspection in smart factories.

Module 4: Digital Twin Technology

- Concept of digital twins in manufacturing
- Virtual simulation of production systems
- Real-time monitoring and optimization
- Product lifecycle integration
- Risk reduction through simulation
- **Case Study:** General Electric using digital twins for turbine performance optimization.

Module 5: Industrial IoT & Smart Sensors

- IIoT architecture and connectivity
- Sensor-based real-time data collection
- Edge computing in manufacturing
- Asset tracking and monitoring
- System interoperability
- **Case Study:** Bosch implementing IoT-enabled predictive maintenance in production plants.

Module 6: Sustainable & Green Manufacturing

- Carbon-neutral production strategies
- Circular economy models
- Energy-efficient manufacturing systems
- Waste reduction technologies
- ESG compliance frameworks
- **Case Study:** Unilever reducing factory emissions through sustainable process redesign.

Module 7: Human Factors & Ergonomics

- Workplace safety optimization
- Cognitive workload balancing

- Ergonomic workstation design
- Fatigue reduction strategies
- Human performance analytics
- **Case Study:** Boeing redesigning assembly lines to reduce operator strain and increase accuracy.

Module 8: Smart Supply Chain & Resilience

- AI-driven supply chain forecasting
- Risk management in global networks
- Agile manufacturing systems
- Blockchain in supply chain transparency
- Demand-driven production systems
- **Case Study:** Amazon leveraging AI logistics for real-time supply chain optimization.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

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
23 Nov 2026	27 Nov 2026	Physical	$6,000

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

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