



LEAN PRINCIPLES IN R&D FOR OPERATIONAL EXCELLENCE TRAINING COURSE

21 - 25 DEC 2026

CALIFORNIA

7900 € (PER PERSON)

REF: #RD5517_140121



COURSE INTRODUCTION / OVERVIEW:

This course provides a comprehensive framework for applying Lean principles to the Research and Development process, transforming it into a streamlined, efficient, and value-driven engine for innovation. Traditionally confined to manufacturing, Lean thinking offers powerful tools to eliminate waste, reduce time-to-market, and enhance the quality of R&D outcomes. Participants will explore how to adapt methodologies to the unique, often unpredictable nature of innovation. As detailed by author Allen C. Ward in his influential book "Lean Product and Process Development," the focus shifts from merely managing projects to creating a flow of knowledge and value. This training moves beyond theoretical concepts to provide practical, actionable strategies for identifying and eliminating the eight wastes within R&D, from waiting and over-processing to unused employee genius. BIG BEN Training Center has designed this program to empower organizations to build a culture of continuous improvement within their innovation teams, ensuring that R&D investments translate directly into competitive advantage and sustainable growth. By mastering these principles, attendees will be equipped to lead their R&D departments toward operational excellence, fostering faster, more effective, and customer-centric product development cycles.

TARGET AUDIENCE / THIS TRAINING COURSE IS SUITABLE FOR:

- Research and Development Managers.
- Product Development Engineers and Scientists.
- Innovation and Technology Leaders.
- Process Improvement Specialists.
- Project and Program Managers in R&D.
- Quality Assurance and Control Professionals.
- Operations Managers involved in new product introduction.
- Team Leaders in engineering and technical departments.



TARGET SECTORS AND INDUSTRIES:

- Manufacturing and Industrial Production.
- Pharmaceuticals and Biotechnology.
- Software and Technology Development.
- Automotive and Aerospace Engineering.
- Consumer Packaged Goods (CPG).
- Electronics and Semiconductor industries.
- Governmental research agencies and public sector innovation bodies.
- Telecommunications and Energy sectors.

TARGET ORGANIZATIONS DEPARTMENTS:

- Research and Development (R&D).
- Product Management and Strategy.
- Engineering and Design.
- Quality Assurance (QA) and Quality Control (QC).
- Operations and Manufacturing.
- Continuous Improvement and Operational Excellence.
- Project Management Office (PMO).
- New Product Introduction (NPI) Teams.



COURSE OFFERINGS:

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

- Identify and eliminate the eight forms of waste specific to the R&D environment.
- Apply Value Stream Mapping (VSM) to analyze and improve the product development lifecycle.
- Implement Set-Based Concurrent Engineering to explore multiple design options efficiently.
- Utilize A3 problem-solving for structured root cause analysis in technical challenges.
- Develop robust R&D metrics to measure efficiency, quality, and innovation throughput.
- Foster a culture of continuous improvement (Kaizen) within technical and creative teams.
- Streamline the innovation pipeline from ideation to market launch.
- Integrate Lean principles with existing Stage-Gate or Agile development processes.
- Enhance collaboration between R&D, marketing, and manufacturing departments.
- Lead Lean R&D initiatives to accelerate time-to-market and improve ROI.

COURSE METHODOLOGY:

The training methodology at BIG BEN Training Center is designed to be highly interactive, experiential, and directly applicable to the participant's work environment. This course moves beyond traditional lectures to immerse attendees in the practical application of Lean R&D principles. A cornerstone of the program is the extensive use of real-world case studies from various industries, allowing participants to analyze both successes and failures in implementing Lean within innovation-driven departments. Group workshops and team-based exercises will be central to the learning process, where participants will collaborate on activities such as creating Value Stream Maps for a sample R&D process, conducting simulated Kaizen events, and applying A3 thinking to solve complex technical problems. Interactive sessions, facilitated discussions, and peer-to-peer feedback are encouraged to foster a rich learning environment where diverse experiences are shared. The facilitator will act as a coach, guiding participants through hands-on simulations that mirror the challenges of a real R&D setting. This practical, hands-on approach ensures that participants leave not just with knowledge, but with the confidence and skills to implement these powerful methodologies within their own organizations.



COURSE AGENDA (COURSE UNITS):

UNIT ONE: FOUNDATIONS OF LEAN IN THE R&D CONTEXT

- Introduction to Lean principles and their origins.
- Contrasting Lean in manufacturing versus R&D.
- Identifying the eight wastes in the innovation and development process.
- The core concepts of value, flow, and pull in R&D.
- Understanding the role of culture in a Lean transformation.
- The link between Lean R&D and operational excellence.
- Case study analysis of a successful Lean R&D implementation.

UNIT TWO: VALUE STREAM MAPPING FOR PRODUCT DEVELOPMENT

- Defining the value stream for an R&D process.
- Techniques for creating a current state map of the development cycle.
- Identifying bottlenecks, delays, and non-value-added activities.
- Designing a future state map for an optimized R&D flow.
- Metrics for measuring flow and lead time in innovation.
- Practical workshop on mapping a product development process.
- Integrating customer feedback into the value stream.

UNIT THREE: CORE LEAN TOOLS FOR THE R&D ENVIRONMENT

- Set-Based Concurrent Engineering (SBCE) for robust design.
- Knowledge-Based Development and the role of A3 reports.
- Visual management for R&D projects and labs (Kanban, Obeya rooms).
- 5S principles for organizing the R&D workspace and digital files.
- Rapid prototyping and iterative learning cycles.
- Failure Mode and Effects Analysis (FMEA) for proactive risk reduction.
- Introduction to Design for Six Sigma (DFSS) concepts.



UNIT FOUR: LEADING AND SUSTAINING A LEAN R&D CULTURE

- The role of leadership in driving Lean R&D initiatives.
- Building cross-functional teams for effective collaboration.
- Conducting Kaizen events for rapid process improvement in R&D.
- Standardized work for repeatable R&D tasks and processes.
- Developing a problem-solving mindset within the R&D team.
- Strategies for managing resistance to change in a creative environment.
- Creating a system for continuous feedback and learning.

UNIT FIVE: ADVANCED STRATEGIES AND PERFORMANCE MEASUREMENT

- Integrating Lean with Stage-Gate and Agile methodologies.
- Lean R&D portfolio management and resource allocation.
- Developing Key Performance Indicators (KPIs) for Lean R&D.
- Measuring innovation throughput, quality, and speed-to-market.
- Technology road mapping as a strategic Lean tool.
- Building a long-term vision for continuous improvement in R&D.
- Final project presentation and action planning for implementation.

FAQ:

QUALIFICATIONS REQUIRED FOR REGISTERING TO THIS COURSE?

There are no requirements.

HOW LONG IS EACH DAILY SESSION, AND WHAT IS THE TOTAL NUMBER OF TRAINING HOURS FOR THE COURSE?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.



SOMETHING TO THINK ABOUT:

How can an organization balance the structured, waste-reducing nature of Lean with the inherent need for creativity and unstructured exploration in breakthrough R&D?

WHAT UNIQUE QUALITIES DOES THIS COURSE OFFER COMPARED TO OTHER COURSES?

This course distinguishes itself by moving beyond a generic application of manufacturing-based Lean tools and focusing intensely on the unique, non-linear, and knowledge-driven nature of the Research and Development environment. While other courses may teach the "what" of Lean tools, this program emphasizes the "how" and "why" of adapting them specifically for innovation. We delve into the nuanced challenges of applying concepts like flow and standardized work to creative processes, where variability is not always a defect but a source of discovery. The curriculum is built around advanced concepts like Set-Based Concurrent Engineering and Knowledge-Based Development, which are critical for R&D but often overlooked in general Lean training. Rather than just presenting tools, the course fosters a deep understanding of the cultural shift required to build a learning organization where experimentation is managed efficiently. Participants will engage in complex simulations and case studies that mirror the ambiguity and technical challenges of real-world R&D, ensuring they develop the critical thinking skills needed to lead a successful Lean transformation in a highly technical and creative setting.