Circular Economy for Energy and Manufacturing Course

11 – 15 January 2027
Porto

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Training Center

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Ref: 982_174761 **Date:** 11 – 15 January 2027 **Location:** Porto **Fees:** 5700 Euro

Overview

Circular Economy for Energy and Manufacturing Course is a one-week intermediate course for sustainability managers, energy engineers, manufacturing leaders, operations specialists, procurement teams, and resource-efficiency professionals who need a Circular Value Implementation Portfolio. Participants map material and energy flows, identify value leakage, compare circular strategies, test industrial symbiosis opportunities, and build business cases and governance measures. The course joins operational evidence with lifecycle and commercial decisions. Agile Leaders Training Center delivers applied circular economy learning for energy and manufacturing.

Who Should Attend

- Teams responsible for sustainability strategy and circular transition portfolios
- Engineers who manage energy, utilities, materials, and process efficiency
- Operations leaders who reduce waste and improve asset or product utilization
- Procurement and supply-chain teams that evaluate circular sourcing and recovery routes
- Specialists who develop recycling, reuse, by-product, or industrial symbiosis projects

The course assumes participants can interpret basic operating, cost, and resource data; it leaves out detailed lifecycle-assessment modeling and environmental permitting.

Departments and Industries

The course supports functions that turn resource losses into operational and commercial circular opportunities.

- Energy generation, utilities, and energy-intensive operations
- Manufacturing, process industries, and industrial parks
- Sustainability, environment, and corporate planning
- Operations excellence, engineering, and maintenance
- Procurement, supply chain, product design, and commercial development

Learning Objectives

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

- Apply circular economy principles to industrial decisions
- Build material and energy flow maps
- Analyze value leakage and circular intervention options
- Evaluate industrial symbiosis and circular business cases
- Compare circular product, process, and sourcing strategies
- Prioritize metrics, risks, owners, and implementation actions

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Course Agenda

Day 1: Circular Value and System Boundaries

- ISO 59004 Circular Economy Vocabulary and Principles Map
- Linear-to-Circular Value Leakage Diagnostic
- Lifecycle Boundary and Stakeholder System Canvas
- Value Retention Strategy Hierarchy
- Energy and Manufacturing Circular Opportunity Register

Day 2: Material, Energy, and Waste Flows

- Material and Energy Flow Mapping Method
- Non-Product Output and Waste-Cost Baseline
- Resource Efficient and Cleaner Production Option Matrix
- Waste Hierarchy and Recovery Route Decision Tree
- Industrial Resource Efficiency Improvement Sheet

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Day 3: Circular Design and Industrial Symbiosis

- Circular Product and Process Design Checklist
- Repair, Reuse, Remanufacture, and Recycling Pathway Map
- Industrial By-Product Quality and Exchange Specification
- Industrial Symbiosis Partner and Infrastructure Canvas
- Waste-to-Value Opportunity Screening Exercise

Day 4: Business Cases, Metrics, and Controls

- Circular Business Model Pattern Selection
- Technical, Economic, Environmental, and Social Option Appraisal
- Circular Initiative Cash-Flow and Sensitivity Case
- Resource Circularity Indicator and Performance Dashboard
- Supply, Quality, Safety, Market, and Compliance Risk Register

Day 5: Roadmap Practice and Capstone

- Exercise on Resource Flow Hotspot Prioritization
- Exercise on Circular Intervention and Partner Selection
- Exercise on Business-Case and Risk-Gate Review
- Exercise on Governance, Ownership, and Measurement Planning
- Capstone Exercise: Circular Value Implementation Portfolio

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Practical Exercises

The course uses suggested activities that convert operating data into a sequenced circular transition.

- Suggested activity: map material and energy inputs, products, by-products, losses, and destinations
- Suggested activity: screen reuse, repair, remanufacture, recycling, and symbiosis options
- Suggested activity: compare technical feasibility, value, risk, and stakeholder dependencies
- Suggested activity: build a circular implementation roadmap with owners and measures

FAQs

Who suits circular economy for energy and manufacturing, and what does it assume?

Managers, engineers, operations specialists, procurement teams, and resource-efficiency practitioners suit the course. It assumes access to basic process, material, energy, waste, and cost information and does not require advanced lifecycle modeling.

How does circular economy training differ from general waste management training?

Circular economy training addresses value retention across design, sourcing, production, use, recovery, partnerships, and business models. Waste management training usually concentrates on handling, treatment, recycling, and disposal after materials become waste.

How can manufacturing waste become a circular value opportunity?

Teams first identify quantity, consistency, composition, contamination, location, timing, and current cost. They then compare prevention, internal reuse, remanufacture, recycling, by-product sales, and industrial symbiosis against technical, commercial, environmental, safety, and compliance criteria.

What is industrial symbiosis in a circular economy?

Industrial symbiosis connects organizations so one party's underused material, energy, water, capacity, or infrastructure can become another party's resource. Viability depends on quality specifications, reliable volumes, logistics, responsibilities, risk controls, and mutual value.

How should circular economy initiatives be prioritized?

Initiatives should be compared through strategic fit, resource impact, retained value, feasibility, investment, operating risk, stakeholder readiness, data quality, and time to implementation. A transparent gate prevents attractive ideas from bypassing essential constraints.

Conclusion

Participants leave with a Circular Value Implementation Portfolio containing flow maps, leakage evidence, intervention screens, partner options, business cases, risk controls, metrics, and a staged roadmap. The portfolio changes disconnected waste projects into an integrated resource-value agenda. Teams can update it as data improves and decisions pass each implementation gate.