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COURSE BROCHURE

Advanced Life Cycle Assessment and Eco-Design Training Course

26 July – 6 August 2027
Singapore

Advanced Life Cycle Assessment and Eco-Design Training Course

Ref: 640_23783 **Date:** 26 July – 6 August 2027 **Location:** Singapore **Fees:** 12000 GBP

Life Cycle Assessment and Eco-Design is a 2-week advanced training course for product engineers, environmental analysts and sustainable design teams who quantify the footprint of products from raw material to end of life. Participants complete a product LCA study with eco-design recommendations. Buyers, investors and procurement teams increasingly ask for evidence behind green product claims, so design choices need numbers that survive scrutiny. Jupiter Prime Training delivers this course on life cycle assessment.

Why Life Cycle Assessment and Eco-Design Matters Now

Three groups now shape how products are judged on environmental grounds. Corporate buyers request product footprints in tenders, investors read emissions figures reported under the GHG Protocol and IFRS S2, and consumer protection bodies challenge vague green claims. An organisation that models its products well can redesign early, when changes are cheap, and defend every claim it publishes. One that relies on rough estimates risks greenwashing accusations and misses savings in materials and energy. The course rests on the GHG Protocol for emissions accounting and on GRI Standards for disclosing product impacts.

Who Gains Most from Life Cycle Assessment and Eco-Design

- Product design leads responsible for material and component choices at concept stage
- Environmental analysts who build inventory models and run impact calculations
- Sustainability specialists who prepare product footprints for customers and reports
- Procurement engineers who compare supplier materials on embodied impacts
- Quality and compliance staff who verify environmental product claims before release

Design and engineering groups gain most when a designer, an analyst and a procurement colleague attend together, because one shared model then links material choices, supplier data and claim verification.

Life Cycle Assessment and Eco-Design Capabilities

Participants move from setting the boundaries of a study to turning impact results into redesign choices that engineers and buyers can act on.

- Define goal, scope, functional unit and system boundary for a product study — study commissioning decisions
- Build a life cycle inventory from primary and background data — data collection priorities
- Calculate midpoint and endpoint impact indicators with a chosen method — impact category selection
- Test result robustness through sensitivity and uncertainty analysis — confidence in published figures
- Weigh eco-design options such as lightweighting, recycled content and design for disassembly — product redesign choices
- Communicate LCA results and limitations to buyers and executives — environmental claim approval

Key Life Cycle Assessment and Eco-Design Terms

- Functional unit — the quantified performance a product delivers, used as the reference against which all inputs and outputs are measured
- System boundary — the line that decides which processes, from extraction to disposal, are included in the study
- Life cycle inventory — the compiled list of material, energy, emission and waste flows linked to the functional unit
- Characterisation factor — a coefficient that converts an inventory flow into its contribution to an impact category such as climate change
- Allocation — the rule for dividing the burdens of a shared process between co-products or between first and second product life
- Hotspot — a life cycle stage or process that drives a large share of a product's total impact

Life Cycle Assessment and Eco-Design Day by Day

Day 1: Forces Behind Product Footprints

- Buyer Footprint Requests in Tenders — Which Product Data Customers Demand
- Green Claim Challenges and Greenwashing Cases — Credibility of Product Messaging
- Investor Emissions Questions Under IFRS S2 — Link Between Products and Disclosure
- Life Cycle Thinking Across Sectors — Where Impacts Hide Beyond the Factory
- Product Portfolio Screening Matrix — Which Products to Study First

Day 2: Goal and Scope Definition

- Study Goal Statement — Intended Audience and Comparative Use
- Functional Unit Selection — Fair Comparison Between Product Alternatives
- Cradle-to-Gate Versus Cradle-to-Grave Boundaries — Study Depth and Cost
- Cut-Off Criteria Setting — Which Minor Flows Can Be Excluded
- Critical Review Planning — Independent Check for Public Comparisons

Day 3: Building the Life Cycle Inventory

- Process Flow Mapping — Unit Processes and Their Exchanges
- Primary Data Collection Templates — Supplier and Plant Measurements
- Background Database Selection — Generic Data Fit and Representativeness
- Data Quality Indicators — Temporal, Geographic and Technological Fit
- Mass and Energy Balance Checks — Gaps and Double Counting

Day 4: Allocation and Multi-Output Systems

- Physical Versus Economic Allocation — Fair Burden Split Between Co-Products
- System Expansion and Substitution — Credits for Avoided Production
- Recycled Content and End-of-Life Formulas — Circularity Credit Rules
- Transport and Logistics Modelling — Distribution Stage Contribution
- Use-Phase Energy Scenarios — Customer Behaviour Assumptions

Day 5: Life Cycle Impact Assessment Methods

- Midpoint Indicator Sets — Climate, Acidification, Eutrophication and Water Use
- Endpoint Damage Modelling — Human Health and Ecosystem Effects
- Carbon Footprint Calculation Using the GHG Protocol — Product Emissions Figure
- Normalisation and Weighting — Single-Score Communication Trade-Offs
- Impact Method Choice Rationale — Consistency With Sector Practice

Day 6: Interpretation, Sensitivity and Uncertainty

- Contribution and Hotspot Analysis — Stages Driving Total Impact
- Sensitivity Testing of Key Assumptions — Robustness of Conclusions
- Monte Carlo Uncertainty Runs — Confidence Ranges for Results
- Scenario Comparison Tables — Choosing Between Design Alternatives
- Completeness and Consistency Checks — Readiness for Reporting

Day 7: Eco-Design Strategies

- Lightweighting and Material Substitution — Embodied Impact Reduction
- Design for Disassembly and Repair — Product Lifetime Extension
- Recycled and Bio-Based Material Trade-Offs — Burden Shifting Risks
- Packaging Optimisation — Distribution and Waste Impacts
- Eco-Design Checklist for Concept Reviews — Early Gate Decisions

Day 8: Circularity and Supply Chain Data

- Material Circularity Indicators — Reuse and Recovery Performance
- Supplier Footprint Data Requests — Primary Data Coverage
- Take-Back and Remanufacturing Models — End-of-Life Value Recovery
- Scope 3 Purchased Goods Link — Corporate Inventory Alignment
- Supplier Engagement Scorecard — Procurement Selection Criteria

Day 9: Communicating Product Results

- Environmental Product Claims Vetting — Substantiation Before Publication
- LCA Report Structure — Transparency on Methods and Limits
- Comparative Assertion Safeguards — Fair Competitor Comparisons
- Product Impact Disclosure Under GRI Standards — Stakeholder Reporting
- Executive Summary Visuals — Redesign Funding Decisions

Day 10: Practising the Product LCA Study

- Goal, Scope and Functional Unit Drafting — Applying Earlier Study Definitions
- Inventory and Allocation Model Build — Applying Data and Burden Rules
- Impact Calculation and Hotspot Review — Applying Chosen Methods
- Sensitivity Results and Eco-Design Options — Applying Redesign Strategies
- Product LCA Study With Eco-Design Recommendations — Final Peer Review

Applying Life Cycle Assessment and Eco-Design After the Course

- Run a screening LCA on one high-volume product using the goal, scope and hotspot methods from the course, and share the hotspot list with the design team
- Send a primary data request to the three largest material suppliers and replace generic database values in the inventory model

Life Cycle Assessment and Eco-Design Questions FAQ

What is life cycle assessment and eco-design, and why does it matter now?

Life cycle assessment and eco-design is the practice of measuring a product's environmental impacts across its whole life and using the results to redesign it. Buyers, investors and claim reviewers now expect product figures backed by transparent models.

Which roles gain most from life cycle assessment and eco-design training?

Product designers, environmental analysts, sustainability specialists, procurement engineers and claim reviewers gain most. Each uses the same study model for a different decision, from material choice to supplier selection and claim approval.

How does life cycle assessment and eco-design differ from a carbon accounting course?

A carbon accounting course measures an organisation's total emissions across its operations. This advanced course studies one product across many impact categories, then turns the results into redesign choices for materials, use and end of life.

What do you bring back from life cycle assessment and eco-design training?

You bring back a completed product study with eco-design recommendations, an inventory model you can update with supplier data, and a method for testing whether green product claims hold up.

Life Cycle Assessment and Eco-Design: The Way Forward

The product LCA study with eco-design recommendations first informs which hotspot to tackle in the next design revision. Design leads use it to brief engineers, procurement uses it to question suppliers, and claim reviewers use it before publication. After its first use, revisit the allocation and end-of-life assumptions, since new supplier data and recycling routes often change the ranking of options.