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# Obsolescence Analysis and Management

10 – 14 May 2027
Accra (Ghana)

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**Ref:** 3255951_356894 **Date:** 10 – 14 May 2027 **Location:** Accra (Ghana) **Fees:** 4200 GBP

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## Course Introduction

Obsolescence has become a significant operational and strategic challenge for organizations that rely on long-life assets, equipment, technical systems, electronic components, software, and complex supply chains. As technology continues to evolve rapidly, manufacturers may discontinue products, suppliers may withdraw from the market, software support may end, and regulatory requirements may change. These developments can leave organizations dependent on systems or components that are no longer available, supported, or economically sustainable.

Obsolescence is not limited to aging equipment or assets that have reached the end of their expected service life. It can emerge at any stage of a system's lifecycle. A recently installed electronic component may suddenly become unavailable, a critical software platform may no longer receive security updates, or a material may become noncompliant with environmental or safety regulations. In each case, the organization may face rising maintenance costs, delayed repairs, operational interruptions, reduced asset reliability, and difficulties in securing suitable replacements.

The Obsolescence Analysis and Management course provides a practical and structured approach to identifying, assessing, and managing obsolescence risks before they develop into serious operational problems. It covers asset and system lifecycles, critical component monitoring, manufacturer and supplier notifications, technical replacement analysis, last-time purchasing, long-term storage, redesign, planned replacement, and obsolescence data management.

The course focuses on moving organizations away from reactive problem-solving toward proactive, risk-based obsolescence management. Participants will learn how to establish an obsolescence risk register, classify assets and components according to operational importance, assess the financial and technical impact of obsolescence, and select appropriate mitigation strategies. They will also explore how obsolescence management connects with asset management, maintenance, engineering, procurement, inventory control, quality assurance, and business continuity planning.

Effective obsolescence management is especially important in industries where equipment and systems are expected to operate for many years. These include aerospace, defense, transportation, energy, oil and gas, telecommunications, manufacturing, utilities, healthcare, infrastructure, and government services. In such sectors, the inability to obtain one critical component may affect the reliability, safety, availability, or performance of an entire system.



Through practical exercises, analytical tools, and realistic case studies, this course enables managers, engineers, supervisors, procurement specialists, maintenance professionals, and operations teams to develop practical obsolescence management plans suited to their organizational needs. Participants will improve their ability to make informed decisions that balance cost, risk, quality, safety, technical performance, and long-term operational availability.

## Course Objectives

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



- Understand the concept, causes, types, and consequences of obsolescence.
- Distinguish between technical, commercial, functional, regulatory, and software obsolescence.
- Analyze the lifecycle of assets, systems, equipment, and components.
- Identify early warning signs of potential obsolescence.
- Determine which assets and components are most exposed to obsolescence risks.
- Develop and maintain a structured obsolescence risk register.
- Classify obsolescence risks according to probability, impact, and priority.
- Analyze product discontinuation, end-of-life, and end-of-support notifications.
- Evaluate technical and commercial alternatives for obsolete components.
- Select appropriate mitigation strategies for different obsolescence scenarios.
- Plan last-time purchases and calculate appropriate procurement quantities.
- Manage the long-term storage of critical components and spare parts.
- Estimate the total cost of replacement, modification, redesign, and continued operation.
- Integrate obsolescence management with asset management, maintenance, procurement, and inventory control.
- Establish performance indicators for monitoring obsolescence management activities.
- Develop a practical roadmap for proactive and sustainable obsolescence management.



## Course Modules

### Day 1: Obsolescence Fundamentals and Asset Lifecycle

- Definition and scope of obsolescence.
- Obsolescence versus deterioration and end of service life.
- Technical, commercial, functional, and regulatory obsolescence.
- Hardware, software, and component obsolescence.
- Internal and external causes of obsolescence.
- Stages of the asset and system lifecycle.
- Design life versus operational life.
- Impact of technological development on system continuity.
- Effects of obsolescence on safety, quality, and operations.
- Direct and indirect costs of obsolescence.
- Stakeholder roles and responsibilities.
- Principles of proactive obsolescence management.



## Day 2: Obsolescence Identification and Risk Analysis

- Sources of obsolescence information.
- Manufacturer and supplier data monitoring.
- Product discontinuation notifications.
- End-of-life and end-of-support notices.
- Monitoring manufacturer and supplier stability.
- Bill of materials analysis.
- Identification of critical and single-source components.
- Development of an obsolescence risk register.
- Assessment of obsolescence probability.
- Evaluation of operational, technical, and financial impact.
- Obsolescence risk classification matrix.
- Early warning and continuous monitoring systems.



## Day 3: Obsolescence Mitigation Strategies

- Continued use with controlled risk monitoring.
- Identification of alternative and approved suppliers.
- Replacement with equivalent components.
- Limited engineering modification.
- Partial or full system redesign.
- Complete asset or system replacement.
- Last-time purchasing strategies.
- Acquisition of manufacturing or design rights.
- Repair, refurbishment, and remanufacturing.
- Use of modern technologies to produce replacement parts.
- Evaluation of mitigation benefits and limitations.
- Selection of strategies based on risk and cost.



## Day 4: Planning, Integration, and Supplier Management

- Development of an obsolescence management plan.
- Integration with asset lifecycle management.
- Alignment with maintenance planning.
- Integration with procurement and contract management.
- Management of critical spare parts inventory.
- Long-term storage requirements.
- Preservation of component quality and usability.
- Supplier capability and continuity assessment.
- Inclusion of obsolescence clauses in contracts.
- Technical data and component record management.
- Documentation of engineering changes and decisions.
- Governance and allocation of responsibilities.



## Day 5: Practical Application and Improvement Roadmap

- Analysis of an obsolescence case study.
- Review of component lists and criticality levels.
- Preparation of an obsolescence risk register.
- Application of probability and impact assessments.
- Comparison of technical and commercial alternatives.
- Cost analysis of mitigation options.
- Development of a last-time purchase plan.
- Design of an early warning and monitoring process.
- Establishment of key performance indicators.
- Preparation of periodic reporting templates.
- Development of a supplier communication plan.
- Creation of an organizational obsolescence roadmap.



## Why Should You Attend This Course?

- Identify obsolescence risks before they disrupt operations.
- Reduce equipment downtime caused by unavailable components.
- Improve purchasing and inventory decisions for critical spare parts.
- Strengthen coordination between engineering, maintenance, procurement, and operations.
- Evaluate technical alternatives using a structured approach.
- Reduce emergency replacement and unplanned redesign costs.
- Improve asset availability and operational continuity.
- Strengthen supplier management and alternative sourcing strategies.
- Connect obsolescence decisions with lifecycle cost and risk analysis.
- Develop measurable indicators for tracking obsolescence performance.
- Improve the quality of technical records and component data.
- Build a practical and proactive organizational obsolescence plan.

## Course Conclusion

Obsolescence management is essential for maintaining the reliability, availability, safety, and performance of long-life assets and technical systems. Organizations that fail to anticipate product discontinuation, supplier withdrawal, or the end of technical support may face unexpected costs, operational delays, and significant business risks.

This course provides participants with the knowledge and practical tools needed to understand obsolescence, recognize its warning signs, evaluate its impact, and select appropriate mitigation strategies. It also enables them to compare technical and commercial alternatives while considering cost, reliability, safety, and operational continuity.



The course outcomes can be applied directly through the development of obsolescence risk registers, critical component classifications, early warning mechanisms, supplier communication procedures, and integrated procurement and maintenance plans. These practices help transform obsolescence management from a reactive activity into a structured and proactive organizational process.

Over the long term, effective obsolescence analysis and management can reduce maintenance costs, improve asset reliability, support modernization decisions, and strengthen operational resilience. It also gives organizations greater visibility over lifecycle risks and enables them to maintain critical capabilities despite technological, commercial, and regulatory change.

