Learn the fundamentals of Asset Integrity Management and how to structure and efficiently implement its key elements using the latest risk based techniques.

AIE’s asset integrity training course can make a significant and lasting difference to your asset integrity capabilities.

- **ANALYSE** the essential components of a functioning IM system
- **REVIEW** major incidents and target learning to real-life scenarios
- **LEARN** key asset threats and how to identify and mitigate them
- **IMPLEMENT** key Integrity services such as risk based inspection and pipeline Integrity
- **UNDERSTAND** the latest risk based IM methodologies & techniques
- **COMPLETE** a series of Integrity case studies and gain hands on experience
- **NETWORK** with a variety of influential personnel

**WHO SHOULD ATTEND**

The course is intended for Managers, Engineers, Inspectors and Technicians in the fields of:

- Integrity & Inspection
- Engineering
- Maintenance
- Process & Operations
- HSE

From heavy industry but especially:

- Oil & Gas
- Petrochemical & Chemical
- Refineries
- Power & Utilities
- Engineering
- Nuclear

**TRAINING HANDOUT**

On completion of the course we provide our asset integrity literature to reinforce the subjects that have been covered and to provide a clear and comprehensive reference for future learning.
AGENDA

COURSE OVERVIEW
Our 3-day Integrity course provides both theoretical and practical exposure to the foundations of asset integrity management and explains how it should be implemented to safeguard assets, people and the environment.

The course focuses on modern risk based methodologies to manage asset integrity in both newly constructed and aged facilities. It explains and then addresses key threats facing the Oil and Gas industry and provides both established and innovative practices to safely mitigate them.

Our literature and course content is completely code compliant and follows the latest industry-wide best engineering practices. We create an interactive learning environment which analyses asset specific threats and previous major incidents from a variety of locations and operating environments around the world.

The course is delivered in 10 intensive modules which are interrelated and written to create a structured and comprehensive learning environment. Each module is followed by a practical case study where delegates are given the chance to implement aspects of the training with guidance from our expert trainers.

DAY 1

Introduction and Major Incident Review
An introduction to the course, its contents and the trainer, followed by an Integrity threat brainstorming session and a review of a major incident.

Module 1 – Asset Integrity Elements
An overview and explanation of the 10 elements making up a functioning Integrity management system. We explore the importance of each element and how they are interrelated and used to ensure a robust and effective asset-wide IM system.

- Integrity elements and their dependency on each other
- History of Integrity elements and their role
- Importance of integrity elements
- Integrity element definition and implementation

Module 2 – Asset Integrity Life Cycle
Targeted at addressing how Integrity should be considered and implemented at different stages of an asset’s lifecycle. Providing a clear understanding on how the decisions or actions made at one stage affect the next.

- The Integrity lifecycle
- Concept selection and definition
- Detailed engineering and design
- Construction and commissioning
- Operation, modification and maintenance
- Acquisition and decommissioning

Module 3 – Asset Integrity Barriers
Introduction to Asset Integrity Barriers and how they are designed, structured, and maintained to prevent major accident hazards.

- Integrity barrier definition and introduction
- Hard and soft barriers
- The Swiss Cheese and Bow Tie models
- Barrier threats and mitigation measures

PROGRAM SCHEDULE
(Day 1, Day 2 & Day 3)

09:00 - 10:30 Morning Session 1
10:30 - 11:00 Refreshments & Networking Break
11:00 - 12:30 Morning Session 2
12:30 - 13:30 Lunch
13:30 - 15:00 Afternoon Session 1
15:00 - 15:30 Refreshments & Networking Break
15:30 - 17:00 Afternoon Session 2
Module 4 – Safety Critical Elements and Equipment
Explanation of safety critical elements, equipment and the vital role they play in asset integrity. We explore the methodology to identify SCE and the standards and assurance process used to manage their condition and reliability.

• SCE and operational Integrity management
• Safety critical element vs safety critical equipment
• Major accident hazards
• Identifying SCE & performance standards
• Verification, assurance and ICP

Module 5 – Asset Degradation and Damage
Definition and analysis of the key degradation and damage threats found in the Oil and Gas industry, and the design concepts, identification techniques and mitigation actions used to manage them.

• Degradation, damage and its impact
• The Bath Tub Curve
• Time independent vs. time dependent failures
• Key degradation and damage threats
• Design concepts, identification and mitigation measures

Module 6 – Risk Based Inspection
An introduction to risk based inspection, its components, benefits limitations and a step-by-step methodology on how to implement it.

• Introduction and the history of RBI
• Benefits and limitations
• RBI methodology and implementation
• Written schemes of examination
• Inspection scheduling

Module 7 – Pipeline Integrity Management
An overview of the structure and necessary components of a functioning pipeline integrity management system. Explanation of key threats, mitigation actions and how to implement pipeline integrity using a modern risk based approach.

• Pipeline integrity process and elements
• Pipeline threats and anomalies
• Pipeline mitigation techniques and overview
• Risk based pipeline integrity methodology

Module 8 – Key Performance Indicators
An explanation of KPIs and the strategic role they play in communicating integrity performance. A variety of KPI structures are explored in order to understand how they can be used to maximum effect.

• KPIs and their function
• Lagging and leading KPI’s
• KPI tiers and setup
• Using KPIs to drive Integrity

Module 9 – Emergency Repairs
A comprehensive review of emergency repair options and techniques available on the market to use as part of a reactive integrity management system, and the advantages, disadvantages, limitations and safe applications of each.

• Emergency repair and loss of containment
• Fitness for service and defect assessment
• Sleeves, clamps and mechanical connectors
• Composites and clock spring
• Mechanical replacement
• Line stopping and hot tapping

Module 10 – Asset Integrity Review Process
Learn how to complete an independent review of an asset’s integrity management system and how the results should be analyzed and presented to demonstrate the risk profile of the asset.

• The asset integrity review team
• The review process
• Integrity review strategy and preparation
• Implementing a review
• Reporting and evaluation of results
COURSE FACILITATOR

Our Integrity training course is delivered by one of our Integrity trainers who each have a significant amount of expertise in asset Integrity setup, implementation and management. Our trainers have many years of practical IM experience and are considered to be integrity management experts within the industry; they have also published a variety of related papers. Their skills and experience are fully harnessed to make a lasting impact on our delegates.

PRE-COURSE PREPARATION

We target our training to the work environment of the delegates. A questionnaire is forwarded to each delegate before the course starts and the results are analyzed by the training team prior to the event. This allows us to focus on familiar integrity threats and challenges which helps to reinforce learning and provide practical solutions to real threats.

REGISTRATION

Please complete the below form in full using BLOCK CAPITALS.
One completed form is required per delegate. Booking forms and any enquiries should be emailed to training@aiegroup.org.

DELEGATE DETAILS

Title:  Mr ☐ Mrs ☐ Ms ☐ Dr ☐ Other _______________________
Company Name ____________________________________________
First Name ________________________________________________
Surname _________________________________________________
Email _____________________________________________________
Job Title __________________________  Department ___________________{
Address __________________________________________________
Postcode __________________________  Country ___________________{
Telephone __________________________ Fax _____________________
Name of Department Head _________________________________
Name of Training Manager __________________________________

I hereby agree to AIE’s terms and conditions for this training course ☐

Signature ______________________________________ Date _________

TRAINING PRICES

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Early Bird Price</th>
<th>Normal Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Integrity Management</td>
<td>2200 USD*</td>
<td>2600 USD</td>
</tr>
</tbody>
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Prices quoted are per delegate attending. Team discounts are available on request. Please note: accommodation and travel costs are not included in the course fees.

*The Early Bird Price expiry date is as per the training schedule shown on our Public Training Courses webpage (https://www.assetintegrityengineering.com/training/public-courses/).