



TRIPOD BETA BRONZE COURSE

**INCIDENT INVESTIGATION ANALYSIS METHOD
3-DAY ACCREDITED PROGRAMME**

Most investigations stop at human error. Tripod Beta goes further — tracing every failed barrier back to the management system failures that caused it. Learn to produce findings that actually prevent recurrence.



DURATION
3 Days

ACCREDITATION BY
Energy Institute, UK

PARTICIPANTS
15 per cohort

WHO SHOULD ATTEND

- HSE Managers & Officers
- Risk & Safety Consultants
- Investigation Team Leads
- EI Bronze Accreditation Candidates
- Operations & Engineering Personnel

PROGRAMME OVERVIEW

TRIPOD BETA BRONZE - 3-DAYS ACCREDITED PROGRAMME



WHY TRIPOD BETA?

Most incident investigations stop at human error. Tripod Beta goes further — it traces every failed barrier back through the management system failures that caused it to fail. This 3-day programme equips participants to conduct full systemic investigations, produce defensible findings, and develop corrective actions that address root causes rather than symptoms. Delivered using IncidentXP software with real-world case studies.

PROGRAMME FACTS

DURATION	3 Days (full-day)
LEVEL	Intermediate — Advanced
ACCREDITATION	Energy Institute UK Bronze
DELIVERY	In-House · Public · Virtual
LANGUAGE	English or Bahasa Malaysia
MAX PARTICIPANTS	15 per cohort
PREREQUISITES	Basic HSE background

WHO SHOULD ATTEND

- **HSE Managers, Officers & Advisors**
responsible for incident investigation
- **Investigation Team Leads & Members**
at major hazard facilities
- **Operations & Engineering Personnel**
with incident investigation duties
- **Risk & Safety Consultants**
advising on system investigation
- **EI Bronze Accreditation Candidates**
seeking professional certification

LEARNING OUTCOMES — WHAT YOU WILL BE ABLE TO DO

- Construct accurate Tripod Beta Trios (Agent, Object, Event) as the foundation of the incident tree
- Build complete causation paths from barrier failure through to underlying management system causes
- Classify all 11 Basic Risk Factor (BRF) categories and identify systemic organisational failures
- Produce investigation reports meeting Energy Institute standards
- Classify barrier states (Effective, Failed, Inadequate, Missing) and apply the SPA wording rule
- Apply the Generic Error Modelling System (GEMS) to understand human behaviour in investigations
- Formulate SMART corrective actions linked to specific barriers and underlying causes
- Prepare a submission for the EI Bronze Accreditation assessment

DELIVERY OPTIONS

In-House / On-Site

Full 3-day programme at client facility
(recommended for teams of 6–15)

Public Workshop

Open enrolment with cross-industry
participants — limited seats

ACCREDITATION PROCESS — BRONZE

Stichting Tripod Foundation & Energy Institute UK

Participants who complete this course sit a written knowledge assessment covering the Tripod concept, trios, barriers, causation paths, and underlying cause classification. Passing confers Bronze Practitioner accreditation from the Energy Institute / Stichting Tripod Foundation, and opens eligibility to pursue Silver and Gold accreditation later.



DAY 1 - INCIDENT INVESTIGATION FOUNDATIONS & TRIPOD BETA FUNDAMENTALS

MODULE 1 — Implication of Incidents, Investigation Process & EI Accreditation

- Business, legal & reputational consequences of incidents — why poor investigation costs more than the incident
- Why conventional tools (5-Whys, Fishbone, ICAM) miss systemic failures and produce generic recommendations
- Swiss Cheese Theory (Reason) — barriers, holes, and latent conditions; plus GEMS (Rasmussen) foundations
- Tripod Beta history, origins, and the Energy Institute framework from the Dutch oil & gas industry
- EI accreditation levels (Novice, Bronze, Silver, Gold) and the Bronze assessment process
- Six-step investigation process: Initial Report → Plan → Investigate → Analyse → Report → Close-out
- Fact-finding — People, Positions, Parts, Papers (4P): gathering and preserving evidence
- Sequential Time-Event Plot (STEP): organising facts chronologically before Tripod analysis
- Practical: Construct a STEP from a provided incident narrative

MODULE 2 — Understanding Tripod Beta: The WHAT & HOW It Happened

- The Tripod Beta model: components, structure, and why it produces different findings from linear methods
- Selecting the incident pathway — identifying the single event sequence the incident followed
- Constructing Trios (Agent, Object, Event) — the incident tree representing WHAT happened
- Barrier states: Effective, Failed, Inadequate, Missing — classifying each barrier on the incident pathway
- Barrier wording rule — Specific, Positive, Action (SPA): barriers described as if they had worked
- Missing barrier conditions and why recording
- Effective barriers is as important as recording failures
- Practical: Construct Trios, add barriers, and classify barrier states

DAY 2 - CAUSATION PATHS, HUMAN BEHAVIOUR & BASIC RISK FACTORS

MODULE 3 — Causation Paths: Why Did Each Barrier Fail?

- Every Failed, Inadequate, or Missing barrier generates one causation path — one path per barrier
- Causation path structure: Barrier → Immediate Cause → Precondition(s) → Underlying Cause(s) → Influencing Environment
- Immediate Cause: the negative mirror image of the barrier — the action/omission that caused the barrier to fail
- Preconditions: situational, physical, or mental context that caused the Immediate Cause to occur
- Underlying Causes: management system failures causing each Precondition — worded specifically, not generically
- Most common construction errors and the level confusion checklist to catch them

MODULE 4 — Human Behaviour, Underlying Causes & BRF Classification

- Generic Error Modelling System (GEMS): skill-based, rule-based & knowledge-based error modes
- Taxonomy of unintentional errors and violations (situational, optimising, reckless, routine)
- Gap, Power, Outcome model: understanding perceptions, beliefs & intentions that shape behaviour
- Underlying Causes — management system failures creating the conditions for each Precondition
- The Influencing Environment: how management, colleagues, regulators & networks shape Underlying Causes
- The 11 Basic Risk Factor (BRF) categories BRF trend analysis: identifying recurring BRFs and what they reveal about systemic organisational failures
- Recommendations (SMART): at Barrier level (temporary fix) and Underlying Cause level (systemic fix) only

PROGRAMME SCHEDULE

DAY 3 - APPLIED INVESTIGATION, REPORT WRITING & EI BRONZE ASSESSMENT



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MODULE 5 — Case Study: Full Tripod Beta Investigation

- Participants conduct a complete Tripod Beta investigation on a complex, multi-barrier real-world incident
- Full Trios constructed for the incident sequence; all Failed, Inadequate & Missing barriers identified and worded (SPA) Complete
- causation paths built for all barrier failures — peer-reviewed and validated in live workshop
- BRF classification applied across all causation paths; BRF pattern analysis to identify systemic failures
- SMART recommendations formulated for all Barriers and Underlying Causes
- Trainer review and structured feedback at each causation path level — live coaching on SPA, GEMS & BRF

MODULE 6 — Investigation Report, Group Presentation & EI Bronze Assessment

- Consolidating the full investigation into a complete and defensible incident investigation report
- Report structure: Cover Page, ToR, Method of Work, The Incident, Findings, Discussion, Recommendations, Conclusion, Appendix
- Writing the Tripod Beta report — structure, language, and what management and regulators need to see
- Presenting systemic findings to a non-technical audience without losing technical rigour
- Group Presentation: participant teams present completed investigations with structured peer & trainer review
- EI Bronze Accreditation assessment: multiple-choice knowledge assessment, available upon request
- Programme close-out and next steps for EI Bronze Accreditation submission
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YOUR TRAINER — ASYRAF KHALIL

Tripod Trainer · Stichting Tripod Foundation & Energy Institute UK

Asyraf holds the Tripod Trainer classification — the highest level in the Tripod Beta hierarchy, above Gold Practitioner — jointly certified by the Stichting Tripod Foundation (Netherlands) and the Energy Institute (UK). Awarded 7 November 2025, valid to 2030. As an accredited Tripod Trainer, Asyraf is authorised to design and deliver Tripod Beta training programmes and run EI Bronze Accreditation assessments. He brings 15 years of industry experience spanning ISO 31000, HIRARC, and Bowtie methodology — making him one of the most credentialed practitioners in Malaysia and Southeast Asia.



REGISTER YOUR INTEREST

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