Course ref	AM23
Course title	Optimization of inspection intervals and strategies
Duration	2 days
Class Size	16
Overview	To introduce quantitative risk-based methods for deciding how often to monitor, inspect or test equipment. To provide students with the skills to evaluate the commercial/risk trade-off, even when available data is incomplete or range-estimated. To explain condition monitoring, predictive maintenance, functional testing and the spectrum of risk-based inspection strategies.
Objective	At the end of the course, students will be able to: • Demonstrate a full understanding of risk-based inspection strategies. • Quantify costs and risks associated with different strategies. • Show competence in using analytical software tools to calculate optimal inspection and test intervals, and the cost/benefit of alternative monitoring methods.
Content	**Predictive maintenance** • Cost and risk components • Case study work • Estimating the probability of failure. • Estimating the consequences of failure • Relating risks to inspection intervals • Methods for setting inspection intervals, deterioration mechanisms/rates, uncertain failure points **Function testing and failure finding** • Hidden failure modes - protection and stand-by equipment • Probability of being in a failed state. Rate of call on the system • Non-invasive inspections, testing-related risks, beneficial effects of testing, multiple layers of safety. • Systematic studies of RBI, criticality ranking, API RP580 • Qualitative and quantitative studies, constructing an inspection programme, dynamic scheduling.
Benefit	Anyone who is involved in justifying inspection or maintenance expenditure, setting inspection or test intervals, or who wishes to improve the auditable basis for their day-to-day decision-making.
Audience	This course is applicable to staff involved in justifying inspection or maintenance expenditure including the following personnel: Engineers, Managers, Operators, Inspection, Maintenance and Safety
Pre-requisites	Although no pre-qualification is required, a degree-level or HND qualification is recommended.
Cross references	TWPL course number AM02, AM15, AM16, AM22, AM24, AM25 and AM26.

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