



FMRIMS	Equipment Reliability Strategy	Reliability, Integrity & Maintenance Training
TM 002		Page 1 of 3

Course Description

The course covers Equipment Reliability Strategy development and implementation to lead an oil & gas company to a pacesetter performance comprising of:

- Knowledge and Best Practices to develop effective equipment reliability strategies (operation, design and maintenance) to reach the world class performance.
- Knowledge a workable, proven and readily implemented method based on Equipment Degradation Templates for machinery, fixed, instrument, electrical and other equipment.
- Knowledge to reach equipment reliability, availability and reduce maintenance costs by use of proven Best Practices.

Who Should Take the Course

The course is ideal for persons with assigned responsibilities for equipment improvements in the reliability and maintainability area, as well as managers who want to increase awareness of the payoffs of improvements managements.

Engineers who need to know the reliability strategy as they apply to developing reliability improvement programs. Design engineers, technical specialists, maintenance specialists, operations technical specialists, reliability specialists, and product/program managers will benefit from the course.

What Will You Learn

The participants will gain knowledge of programs and methods to achieve equipment reliability improvements to reach target performance by application of equipment reliability strategy. They will learn the proven Best Practices that are appropriate to apply for different equipment as well as the basics of implementing the practices to reach reliability, availability and maintenance cost reduction targets.

Included Materials

Attendees will receive a copy of:

- JA1012 RCM Standard
- Nowlan & Heap RCM Report (Original)
- Applicable API & ISO standards for RBI and IPF
- Use of FMRIMS Software During the Course
- RAM Guide
- Course Text Book
- Course Slides



FMRIMS	Equipment Reliability Strategy	Reliability, Integrity & Maintenance Training
TM 002		Page 2 of 3

Course Outline

Introduction

- What is Reliability Strategy?
- Reasons for Reliability Strategy
- The Reliability Strategy Framework
- Reliability Strategy for process plants
- The Reliability Strategy Philosophy
- Equipment Templates
- Standard Deterioration Templates

Analyzing Functional Systems

- The nature of failure; failure types
- Failure Mode Effect & Criticality Analysis (FMECA)
- Applying plausible failure modes
- Mitigating the effects of failure modes
- Prioritizing failures

- **Applying Reliability principles to focus on systems and equipment based on criticality:**

Identifying types of failures and their consequences

Identifying loss for various failures

Prescribing the overall reliability approach and Methodologies “Mix”

- **Equipment selection process to meet RAM requirements**

Operational history

Robustness in design

Maintainability

Life cycle cost determination

After sales service

- **Applying RIMS principles to equipment management**

Mean Time Between Failures (MTBF) Strategies (age or random)

Arresting deterioration

Performing RCA on “bad actors”

Improving reliability by component substitution

Monitoring equipment condition to determine optimal overhaul/replacement

- **Applying best practices technology tools to ensure ongoing reliability**



FMRIMS	Equipment Reliability Strategy	Reliability, Integrity & Maintenance Training
TM 002		Page 3 of 3

Risk Based Methodologies (RBI, RCM, CBM, IPF etc.)
Life extension programs (Residual Life Assessment etc.)

- **Interdisciplinary Reliability Focus Team**
Organizing for Reliability
Understanding human factors in Reliability
Operator Driven Reliability (EBC, TPM etc.)

Course Instructor: Namik Kosaric is a Canadian Professional Engineer with experience with PETRONAS, Bahrain Petroleum Company and ESSO Petroleum Canada in reliability improvements and maintenance cost reduction, mechanical design, project engineering and technical support of Oil Refineries and Oil Production Facilities.

For the last 8 years in PETRONAS Namik Kosaric was responsible for providing technical and knowledge leadership in development, coordination and implementation of plant reliability and integrity improvements and program to PETRONAS OPU's to improve and support the overall Petroliam Nasional Berhad objectives.

In BAPCO, Namik Kosaric, pioneered and implemented a root cause failure analysis of lost profit opportunities and chronic failures using a multi-disciplinary teams to improve plant reliability, availability, safety and to ultimately reduce operating costs. Significant cost savings were achieved as a result of over 200 completed investigations.

For 23 years in ESSO Petroleum Canada, Namik Kosaric has made significant contribution worldwide in reliability improvements, design, projects and maintenance cost reduction in upstream and downstream facilities.

