

2024년도 제2차 해외전문교육 「Applied Maintenance Management」

1. 교육 개요

- 일시/장소 : 2024. 5. 27(월)~31(금), 09:30~17:30 / 재단 강의실
* 해외자원개발협회와 장소 동일(서울시 강남구 강남대로 320, 황화빌딩 7층)
- 개 최 : 재단-한국가스공사
- 주 제 : Applied Maintenance Management
- 기관/강사 : PetroEdge / Laurie Dummett(강사 이력 [첨부1] 참고)
- 분야/수준 : Commercial / 초급
- 모집인원 : 3명(단, 1개 기관에서 다수의 인원이 신청하여 정원 초과 시 인원 제한 가능)
- 교 육 비 : 100,000원(1인 기준)

2. 주요 교육 내용 (상세 내용 [첨부2] 참고)

- 플랜트 및 설비의 유지·보수 국제표준, 최적화된 유지·보수 및 운영 전략과 글로벌 사례 등을 학습하여 관리 역량 제고
- 각 모듈에서 유지보수의 유형, 자산의 신뢰성 향상, 작업 관리, 전략 개발과 지속적인 개선 방법 등 실무에서의 적용 가능한 지식 습득
- ATOM*이 제공하는 브론즈 레벨의 시험을 통해 유지·보수 관리 능력 검증
* the Academy of Turnarounds, Operations and Maintenance

<일별 교육 커리큘럼>

| 구분 | 5.27(월) | 5.28(화) | 5.29(수) | 5.30(목) | 5.31(금) |
|--------|---|--|--|--|--|
| 내 용 | <ul style="list-style-type: none"> • Registration & Trainer's Introduction • Module 1 - World class standards | <ul style="list-style-type: none"> • Module 2 - The Latest Thinking in Best Practice • Module 3 - Reliability, OEE and Maintenance Strategy Development at Equipment Lev | <ul style="list-style-type: none"> • Module Three Improving Reliability at Equipment Level (Continue From Day 2) • Module 4 - Identifying Critical Equipment | <ul style="list-style-type: none"> • Module 5 - Maintenance Planning and Scheduling | <ul style="list-style-type: none"> • Module 6 - Continuous Improvement and optimising • Learning Reviews • End of Course Exam |



TRAINER'S PROFILE

About your Expert Course Leader: Laurie Dummett



Laurie is an award-winning consultant and trainer with 30 years' experience in maintenance and reliability improvement. He founded his consultancy and training business, Carcharodon, in 2002 to focus on maintenance and reliability improvement. As part of this, he developed a range of maintenance "models of excellence" with inputs from authors, international lecturers and some of the world's leading consultants and operators. These models align well with the SRMP 5 pillars of maintenance. His work in Carcharodon has been recognised as being at the leading edge of industry best practice, winning independent awards such as the UK Chemical Industries Association "Excellence in Engineering" award.

He spent the initial 10 years of his career in maintenance management for a major Chemicals Company (ICI), so he brings a very practical approach to training. He moved into consulting with ABB Eutech as their global maintenance specialist where he led maintenance and reliability best practice panels, delivered a wide range of maintenance improvement projects and trained other consultants.

He has worked across five continents, in a wide variety of environments from the world's largest oil refinery to a small drinks production line. **He is a fully qualified CMRP professional, and a globally respected maintenance consultant and best practice trainer.**

He remains close to the industry as a respected specialist helping operating companies to achieve changes in performance. This ongoing field work enables him to continue to refine and extend best practice and the learning from this is continually fed into his training.

He now specialises in training and running Maintenance and Operating health checks but also remains active in maintenance improvement projects, facilitating some of the largest programmes in Europe. In addition, his unique experience of facilitating two major turnarounds when the Coronavirus escalated into lockdown have given him a rich insight into how events of this nature can disrupt maintenance. Moreover, his involvement in developing management processes and leading a Coronavirus response on a major industrial asset means he can talk with direct experience about how to cope and innovate in global pandemic situations.

He is also the expert course leader for the following courses offered by Asia Edge:

- Preventive and Predictive Maintenance
- Effective Plant Turnaround Management



Company Registration No. 200710561C

DAILY LESSON PLAN - DAY 1 - APPLIED MAINTENANCE MANAGEMENT

| Day | Topic | Activity / Methodology | Time |
|--------------------|--|---|--------------------------------------|
| 1 | <p>Introduction & Welcome</p> <ul style="list-style-type: none"> ▪ Introduction and registration ▪ Purpose and aims of Course ▪ Course program, training process ▪ Ice breakers ▪ Quiz <p>Module One - World class standards</p> <ul style="list-style-type: none"> ▪ How maintenance has evolved ▪ Sources of best practice and benchmarking options ▪ The pitfalls of traditional maintenance practices ▪ The role of plant performance optimisation ▪ The black hole of Shutdowns and Turnarounds | <p>Exercise 1 - Investigating a failure and calculating the total opportunity to reduce lost profits for the business</p> <p>Module One - World class standards</p> | <p>09:30 - 13:00</p> <p>AM Break</p> |
| LUNCH BREAK | | | 13:00-14:00 |
| | <p>Module One - World class standards (Continue)</p> <ul style="list-style-type: none"> ▪ Understanding where money should be invested and where money tends to be wasted ▪ The importance of planning ▪ The relationship between fixed costs and maintenance performance ▪ A change in thinking <ul style="list-style-type: none"> ○ Away from cost reduction <i>or</i> reliability <i>or</i> safety ○ Towards cost reduction <i>and</i> reliability <i>and</i> safety | <p>Kahoot Exercise Exercises/Case Studies</p> <p>First Day Evaluation</p> | <p>14:00 17:30PM</p> <p>PM Break</p> |

DAILY LESSON PLAN - DAY 2 - APPLIED MAINTENANCE MANAGEMENT

| Day | Topic | Activity / Methodology | Time |
|--------------------|---|--|-------------------------------------|
| 2 | <p>Module Two - The Latest Thinking in Best Practice</p> <ul style="list-style-type: none"> ▪ Key principles from the current leading bodies <ul style="list-style-type: none"> ○ The Society of Maintenance and Reliability Professionals ○ The /Institute of Asset Management ○ The Academy of Turnarounds Operations and Maintenance ▪ An introduction to Maintenance Modelling ▪ The Carcharodon Models of Excellent ▪ The modern maintenance strategy and asset management ▪ How pace setters add value through maintenance innovation and integration with operating teams ▪ Where people tend to go wrong | <p>Re-Cap Day 1 - Kahoot Quiz</p> <p>Exercise 2 - using the model of excellence to "benchmark" performance</p> | <p>09:30-1300</p> <p>AM Break</p> |
| LUNCH BREAK | | | 13:00 -14:00 |
| | <p>Module Three - Reliability, OEE and Maintenance Strategy Development at Equipment Lev</p> <p>A Holistic Approach to Asset Reliability Improvement</p> <ul style="list-style-type: none"> ▪ Understanding the relevant management processes for any asset and operation ▪ A reliability roadmap, where to start and how to get results as quickly as possible ▪ An appreciation of common methodologies <ul style="list-style-type: none"> ○ Reliability Centred Maintenance ○ Lean and six-sigma ○ Total Productive Maintenance ○ Cost, risk and value engineering ○ The principles of cost-effective maintenance investment ○ Management processes ▪ Baselineing current performance levels and forecasting potential improvement potential ▪ Converting reliability improvement into a business plan | <p>Exercise/Case Studies/Quizzes</p> | <p>14.00-1730PM</p> <p>PM Break</p> |

DAILY LESSON PLAN – DAY 3 – APPLIED MAINTENANCE MANAGEMENT

| DAY | Topics | Activity / Methodology | Time | |
|-----|---|---|-------------------------------------|--------------------|
| 3 | <p>Module Three Improving Reliability at Equipment Level (Continue From Day 2)</p> <ul style="list-style-type: none"> ▪ Setting reliability targets at equipment level ▪ The history of maintenance strategy development at equipment level ▪ The Basic Maintenance Types ▪ Sources of failure and the weaknesses in traditional maintenance in solving this ▪ Analysis options to understand the underlying causes of inadequate equipment performance <ul style="list-style-type: none"> ○ Root Cause Failure Analysis ○ Weibull analysis ○ Criticality analysis ○ Failure Mode Effects and Criticality Analysis ▪ Development of effective maintenance strategies <ul style="list-style-type: none"> ○ Reactive ○ Preventive ○ Predictive ○ Proactive <p>The role of operations in reliability and maintenance performance</p> | <p>Recap Day 2: Kahoot Quiz</p> <p>Exercise 4 – Selecting maintenance strategies for common failures</p> <p>Exercise 5 – Getting to the root cause of the failure and developing a combined set or equipment maintenance strategies to avoid repeat failures</p> | <p>09:30- 13:00</p> <p>AM Break</p> | |
| | LUNCH BREAK | | | 13:00-14:00 |
| | <p>Module Four – Identifying Critical Equipment</p> <p>Module Four – Identifying Critical Equipment</p> <ul style="list-style-type: none"> ▪ How to align maintenance with the unique requirements of any business ▪ Building on the Reliability roadmap and where to start ▪ Baseline asset performance to understand current high impact items ▪ Setting criticality at equipment level <ul style="list-style-type: none"> ○ Defining the critical business impact consequences ○ Developing a criticality scoring matrix model ○ Performing criticality reviews ▪ Embedding criticality in the maintenance process and making sure this evolves with your company's needs | <p>Exercise 6: The basics of planning a job and forecasting the criticality of this item</p> | <p>14:00 -17:30</p> <p>PM Break</p> | |

DAILY LESSON PLAN – DAY 4 – APPLIED MAINTENANCE MANAGEMENT

| Day | Topic | Activity / Methodology | Time |
|-----|--|--|--------------------------------|
| 4 | Module Five – Maintenance Planning and Scheduling <ul style="list-style-type: none"> ▪ The purpose of the work management process and Computerised Maintenance Management Systems ▪ Optimising the workflow process and CMMS system performance <ul style="list-style-type: none"> ○ Modern workflow management processes ○ Adjusting efforts to drive performance and Continuous Improvement ▪ Identifying the correct scope of work <ul style="list-style-type: none"> ○ The work that is critical ○ Eliminating waste ▪ Approval and prioritisation of work ▪ Planning and work pack development for maximum efficiency | Recap Day 3: Kahoot Quiz | 09:00 – 10:30 AM Break |
| | LUNCH BREAK | | 1300-14:00PM |
| | Module Five – Maintenance Planning and Scheduling <ul style="list-style-type: none"> ▪ Scheduling work to meet targets and match resource plans ▪ Using the maintenance process to drive improvement <ul style="list-style-type: none"> ○ Drawing learning from recurring maintenance tasks ○ Reviewing planned maintenance ○ Dealing with the productivity challenge ○ The sad truth about average tool times ▪ Tool time improvements and the novel DILO process ▪ Recording work done, learning and improving future work | Exercise 7 – Developing and plan and optimising the schedule | 14:00 – 1730pm PM Break |

DAILY LESSON PLAN – DAY 5 – APPLIED MAINTENANCE MANAGEMENT

| Day | Topic | Activity / Methodology | Time |
|--------------|---|--|---------------------------------------|
| 5 | <p>Module Six – Continuous Improvement and optimising Predictive and Preventive Maintenance</p> <ul style="list-style-type: none"> ▪ The importance of KPIs <ul style="list-style-type: none"> ○ What to measure and why ○ How to make objectives SMART ○ Understanding the difference between leading and lagging indicators to focus teams on avoiding problems before they happen rather than fixing them afterwards ▪ Drawing learning from recurring maintenance tasks <ul style="list-style-type: none"> ○ Reviewing planned maintenance ○ Dealing with the productivity challenge ○ The sad truth about average tool times ○ How to measure wrench time ▪ The novel DILO process for driving productivity ▪ Refining maintenance policies ▪ Bringing It All Together to Convert Maintenance to a Strategic Weapon <ul style="list-style-type: none"> ○ How learning can be embedded into the maintenance cycle ○ Communication options to get people on side ○ Moving from cost cutting to profit improvement ○ The modern maintenance process ▪ The role of digitalisation | <p>Recap Day 4: Kahoot Quiz</p> <p>Exercise 8 – Developing a maintenance solution to reducing downtime and optimising life</p> | <p>09:30-13:00</p> <p>AM Break</p> |
| LUNCH | | | 1300-14:00PM |
| | <p>Learning Reviews</p> <ul style="list-style-type: none"> ▪ Reviewing key learning from the course ❖ How this can be applied at work ▪ How the exam will work <p>End of Course Exam</p> <ul style="list-style-type: none"> ❖ There will be an opportunity for all participants to sit for the Bronze Level Applied Maintenance Management ❖ This exam will be provided by the Academy of Turnarounds, Operations and Maintenance (ATOM) | <p>Exercise 9 – The epiphany! Innovating to reach next level performance and business results</p> <p>Kahoot Quiz Final Day Evaluation</p> <div style="border: 1px solid black; background-color: #0070C0; color: white; padding: 5px; margin-top: 10px;"> <p>Exam: 1 hour Results: 2 weeks after training Certificates ATOM – E- Certificate will be emailed to individual participants</p> </div> | <p>14:00 – 1730pm</p> <p>PM Break</p> |