



## **External Training Course**

### **Maintain Instrumented Protection Systems (IPS) - Advanced**

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**From 16 Sep. To 20 Sep. 2024**  
**From 14 Oct. To 18 Oct. 2024**  
**From 18 Nov. To 22 Nov. 2024**

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**Edinburgh City, United Kingdom**

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**External Training Course:**

# **Maintain Instrumented Protection Systems (IPS) - Advanced**

**From 16 Sep. To 20 Sep. 2024**

**Fees: 1950 KD**

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## **Course Overview**

This advanced course is designed for professionals in the oil and gas industry to deepen their knowledge and skills in maintaining Instrumented Protection Systems (IPS). The course covers advanced techniques, best practices, and the latest technologies to ensure the reliability and safety of IPS.

## **Learning Objectives**

**In-depth Understanding:** Gain a comprehensive understanding of IPS components, design, and functionality.

**Advanced Maintenance Techniques:** Learn advanced maintenance strategies to improve IPS reliability and performance.

**Diagnostic and Troubleshooting Skills:** Develop skills to diagnose and troubleshoot complex IPS issues.

**Regulatory Compliance:** Understand and apply industry standards and regulatory requirements for IPS.

**Safety and Risk Management:** Enhance your ability to manage safety and risk associated with IPS.

## **Training Methodology**

This training course will utilise a variety of proven highly interactive adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes facilitated group and individual exercises, case studies and role-play. The instructor will also facilitate learning by encouraging the delegates to test and critically appraise any theories and concepts on the training course.

## **Course Modules & Outline**

### **Introduction to Instrumented Protection Systems:**

- Overview of IPS in the oil and gas industry.
- Key components and their functions.
- Importance of IPS in ensuring safety.

## **Design and Engineering of IPS:**

- Advanced design principles.
- Engineering standards and best practices.
- Integration with other safety systems.

## **Maintenance Strategies:**

- Preventive and predictive maintenance techniques.
- Condition-based maintenance (CBM).
- Reliability-centered maintenance (RCM).

## **Diagnostic and Troubleshooting:**

- Advanced diagnostic tools and techniques.
- Root cause analysis.
- Case studies of common IPS failures and solutions.

## **Testing and Validation:**

- Testing methodologies and protocols.
- Functional safety testing.
- Performance validation.

## **Regulatory and Compliance:**

- Industry standards (IEC 61511, IEC 61508).
- Compliance requirements and audits.
- Documentation and record-keeping.

## **Safety and Risk Management:**

- Hazard and operability study (HAZOP).
- Layer of protection analysis (LOPA).
- Safety integrity level (SIL) assessment.

## **Emerging Technologies:**

- Latest advancements in IPS technology.
- Digital transformation and its impact on IPS.
- Future trends in IPS maintenance.

## Course Agenda:

### First Day Agenda

8.30	9.00	Opening Remarks (30 Min.).
9.00	11.30	<u>DISCUSS COURSE TOBICS:</u> <ul style="list-style-type: none"> <li>• Introduction to Instrumented Protection Systems.</li> <li>• Design and Engineering of IPS.</li> <li>• Maintenance Strategies.</li> <li>• Diagnostic and Troubleshooting.</li> <li>• Testing and Validation.</li> <li>• Regulatory and Compliance.</li> <li>• Safety and Risk Management.</li> <li>• Emerging Technologies.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Introduction to Instrumented Protection Systems:</u> <ul style="list-style-type: none"> <li>• Overview of IPS in the oil and gas industry.</li> <li>• Key components and their functions.</li> <li>• Importance of IPS in ensuring safety.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

### Second Day Agenda

9.00	11.30	<u>Design and Engineering of IPS:</u> <ul style="list-style-type: none"> <li>• Advanced design principles.</li> <li>• Engineering standards and best practices.</li> <li>• Integration with other safety systems.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Maintenance Strategies:</u> <ul style="list-style-type: none"> <li>• Preventive and predictive maintenance techniques.</li> <li>• Condition-based maintenance (CBM).</li> <li>• Reliability-centered maintenance (RCM).</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

## Third Day Agenda

9.00	11.30	<u>Diagnostic and Troubleshooting:</u> <ul style="list-style-type: none"> <li>Advanced diagnostic tools and techniques.</li> <li>Root cause analysis.</li> <li>Case studies of common IPS failures and solutions.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Testing and Validation:</u> <ul style="list-style-type: none"> <li>Testing methodologies and protocols.</li> <li>Functional safety testing.</li> <li>Performance validation.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

## Fourth Day Agenda

9.00	11.30	<u>Regulatory and Compliance:</u> <ul style="list-style-type: none"> <li>Industry standards (IEC 61511, IEC 61508).</li> <li>Compliance requirements and audits.</li> <li>Documentation and record-keeping.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Safety and Risk Management:</u> <ul style="list-style-type: none"> <li>Hazard and operability study (HAZOP).</li> <li>Layer of protection analysis (LOPA).</li> <li>Safety integrity level (SIL) assessment.</li> </ul>
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

## Fifth Day Agenda

9.00	11.30	<u>Emerging Technologies:</u> <ul style="list-style-type: none"> <li>Latest advancements in IPS technology.</li> <li>Digital transformation and its impact on IPS.</li> <li>Future trends in IPS maintenance.</li> </ul>
11.30	12.00	Coffee Break
12.00	14.00	<u>Course Review and Assessment:</u> <ul style="list-style-type: none"> <li>Practical Exercises and Role-Playing.</li> <li>Final Assessment and Feedback.</li> </ul>
14.00	14.30	Questions, Discussion & Conclusion Training Course.
14.30		Buffet Lunch