



Training Course:

## Electrical Motors Protection System

Training Course For One Week In

UK - London - Marriott Hotel  
Marble Arch

Which Be Held As Under Details :



**Abar Solutions Petroleum Consultancy Invite Your Employee To Participate With Us In Special Training Course As Under Details:**

Course Name		<b>Electrical Motors Protection System</b>				
Code	Period	Language	Start	End	Location	Fees KD
EL 20	5 Days	English	27/08/2018	31/08/2018	UK – London - Marriott Hotel Marble Arch	1650
			03/09/2018	07/09/2018		
			15/10/2018	19/10/2018		
			12/11/2018	16/11/2018		
<b>** The Fees Includes : Lecturer , Training Material , Training Room With One Coffee Break Daily , Certificate Of Attendance In Last Day Training Course **</b>						

### Introduction

An electrical power system is a vital element in any industrial operation. Regardless of how well the system is designed and built, freedom from equipment failure cannot be guaranteed. A good protection system will minimize damage to the faulted equipment and system while maintaining service to the remaining system. This course has been designed to provide participants with an understanding of basics of electrical protection system. It will cover the operational characteristics of typical protection devices used in an industrial electrical system. Participants will also be introduced to protection systems for major electrical equipment such as generators, transformers, switchgears, and motors. Upon completion of this course, participants should have a better understanding of the technology related to electrical protection systems within the oil and gas industry. Having this knowledge will help each technician develop confidence and professional enthusiasm, therefore increasing their efficiency. The knowledge that technicians gained from this course will be further expanded by on-job training and practical experience they will receive throughout the duration of their career.

### Course Objectives

#### Knowledge:

After completing this course the candidate shall understand the following items:

- Identify the challenges and solutions to power system protection problems.
- Select the appropriate protection schemes for various applications.
- Analyse power system faults for balanced and unbalanced conditions.
- Gain knowledge about signal processing techniques needed for power system protection.

- Describe current and voltage transformers and their impact on protection scheme performance.
- Identify, apply, and calculate settings for overcurrent, directional overcurrent, distance, differential and pilot protection schemes.
- Identify, apply, and calculate settings for power lines, transformer, generator and bus bar protection schemes.
- Identify and apply wide-area monitoring and control (and protection) schemes.

**Skills:**

After completing this course the candidate should be able to:

- Investigate current and voltage transformers and its impact on protection principles.
- Perform power system analysis subject to symmetrical and unsymmetrical faults.
- Connect secondary current and voltage circuits of relay protections.
- Select proper sets of relays and to measure characteristics of protection.
- Calculate relay settings and test this in different operating conditions.

**Course Contents & Outlines**

Protection goals	System faults
Protection relays	Measurement transformers
Fundamentals of motor technology	Ac motor theory, construction & maintenance
Three phase ac induction motors	Protection of ac motors
Speed control of ac motors	Sizing of different motor starters
Contactors applications	Protection of ac convertors and motors
Control systems for ac	Variable speed drives
Pulse width modulation	Field orientation
Direct torque control	Soft starters
Motor Failure Analysis	Motor Testing Methods
Motor Maintenance Practices	The selection of ac convertors for variable
speed drive applications	Installation and commissioning of ac variable
speed drives	Problems related to VSD
Extended Workshop	

*With Best Regards From Abar Solutions Petroleum Consultancy*