



## Engr. Muhammad Umair

Lab Engineer

### Contact Information:

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## Qualification

### Masters of Engineering Management (Energy Management)

- Currently Pursuing from NED University of Engineering and Technology

### BE Electrical Engineering (Electronic)

- Graduated from Usman Institute of Technology with CGPA of 3.28

## Certifications

### Coursera (MOOC)

- "Introduction to Marketing by University of Pennsylvania on Coursera. Certificate earned on January 27, 2016"
- "Introduction to Financial Accounting by University of Pennsylvania on Coursera. Certificate earned on March 27, 2016"

### Continuing Professional Development (CPD)

- CPD Short course on "How to write a technical Research Paper".
- CPD activity on "Design of Graphical User Interface Application using MATLAB".
- CPD activity on "Process Measurements & its Real Time Solutions".
- Certificate of attending "Workshop on ARDUINO Programming and interfacing".
- Certificate of Participation "Professional Development Programme" workshop for UIT Faculty by NED Quality Enhancement Cell.

### ANST SNT-TC-1A (Qualtech NDE – Training)

- Level – 1 Magnetic Particle Testing
- Level – 1 Penetrant Testing

# Work Experience

## **Pakistan International Airlines (PIA) - Internship**

### **Industrial Visits:**

#### **K-Electric Bin Qasim Power Plant**

1. Visual, Fluorescent Penetrant, Magnetic Particle & Ultrasonic Inspection of shaft, coupling flange and inertia slits of Generator Rotor to detect any cracks, impact damages and volumetric defects. Inspection carried out in accordance with the EM 10228-1/2&3, Inspection done in collaboration with ALSTOM International
2. Visual and Liquid Penetrant Inspection of Generator Rotor Hydrogen Blower Blades (Fixed & Rotating) to detect surface breaking, mechanical damages, wear and electric spark pitting in accordance with the EN 571-1, Inspection done in collaboration with ALSTOM International.
  - Six Segment of Fixed Blades (Total 792 blades)
  - Five Rows of Rotating Blades (Total 460 blades)
3. Visual, Liquid Penetrant & Ultrasonic Inspection of upper and lower halves of Generator Bearing white metal surfaces to detect any surface cracks, porosity and impact damages or lack of bond between the white metal and the backing plate. Inspection carried out in accordance with the ISO 4386-1 & 3, Inspection done in collaboration with ALSTOM International.

#### **International Power – HUBCO**

Visual, Fluorescent magnetic Particle & Dye Penetrant Inspection of the *Turbine Hall Overhead Crane Parts*:

- Trolley Drive Shaft
- Shaft & Sheaves Pins
- Shaft & Pins Keys
- Equalizing & Hook Block Sheaves
- Rope Drum
- Main Hook (Hoist)

To detect any cracking or welding/casting imperfections in accordance with International Power NDT Work Instructions NP/WI/NDT106 & NP/WI/NDT102. Inspection of the area was carried out as per routine overhauling outage.

#### **Tapal Energy Pvt. Ltd.**

1. Visual, Magnetic Particle and Dye Penetrant testing to find out any manufacturing/service discontinuities or cracks in main Bearing caps lower halves (front, rear & bottom surfaces) 10.5. MWe diesel generator # 01.
2. Visual and magnetic particle inspection of main crank shaft at journal bearing area (entire circumference) to find out any surface abnormality/cracking of 10.5. MWe diesel generator # 06.

#### **Engro Polymer & Chemical Ltd.**

Visual & Liquid Penetrant Inspection of *Hot Gas path parts of 25 MWe Gas Turbine*:

- Flow Sleeves (10 Nos.)
- Combustion Liners (10 pieces)
- Crossfire Tubs (Male & Female)
- Crossfire tube Retainers (Male & Female)
- Transition Pieces (10 Nos.)
- Turbine Nozzles (Stages 1,2 & 3)
- Turbine Rotor Buckets (Stages 1,2 & 3)

#### **Feroz 1888 Textile Mill**

Visual, Magnetic particle and ultrasonic inspection methods to find out any service induced surface/sub-surface discontinuities or crack in the crankshaft of Caterpillar Diesel Generator entire length including change of sections, main & connecting rods journal bearing areas, crank webs, oil holes and flywheel mounting flange coupling.

#### **Belatexco MIDAS Safety**

Visual & Dye Penetrant Inspection of Compressor-1 Piping Welds (For the supply of service air for pneumatic control of Safety gloves machinery) to detect any pitting, pinholes, porosity, undercuts or cracking in the welds after final pass. Inspection carried out in accordance with the ASME Section-V.

#### **Attock Cement Pakistan Pvt. Ltd.**

Ultrasonic Inspection to find out any internal discontinuities especially service induced circumferential cracks along the change of sections in the kiln support rollers and shafts.

#### **Dalda Foods Pvt. Ltd.**

Integrity testing of edible oil storage tanks using Dye Penetrant and Ultrasonic thickness measurement technique using myself made *Tank Wall Crawler Robot (FYP)*, to analyze and map the condition of storage tank.

## Membership & Affiliation

- Registered Engineer of Pakistan Engineering Council PEC registration no: ELECT/46605
- Member of American Society for Nondestructive testing (ASNT) Membership No: 207533

## Labs Taught & Projects Supervised

### Lab Courses Taught:

- Communication Systems (Fall-2014)
- Digital Logic Design (Fall-2014)
- Programming Fundamentals (Spring-2015)
- Microprocessor Based Systems (Spring-2015)
- Computer Fundamentals (Summer-2015)
- Basic Electronics (Fall-2015)
- Electrical Network Analysis (Fall-2015)
- Electronic Devices & Circuits (Spring-2016)
- Workshop Practice (Spring-2016)
- Communication Systems (Fall-2016)
- Microprocessor Based Systems (Spring-2017-In Progress)
- Programming Fundamentals (Spring-2017-In Progress)

### Projects Supervised:

- Supervised Final Year Project 11B batch: “**Automatic Sachet Filling Machine**”
- Supervised Final Year Project 12B batch: “**Weight based Fruit Sorting Machine**”
- Supervising Final Year Project 13B batch: “**Automated Restaurant Management System**”

## Publications

1. Mujeeb ur Rehman, Shereen Gul, **Muhammad Umair**, Adeela Anwar, A.K.K. Achakzai, “*Anticorrosive Activity of Rosemarinus officinalis L. Leaves Extract Against Mild Steel in Dilute Hydrochloric Acid*”, International Journal of Innovative Research in Advanced Engineering (IJIRAE), Issue 03, Volume 03 (March 2016) ISSN :2349-2763 (SJIF –Scientific Journal Impact Factor Value: 3.361)
2. Muhammad Akram, **Muhammad Umair**, Mujeeb-Ur-Rehman, Dr. Asim Iqbal, “*Failure analysis of Fire Resistant Fluid (FRF) piping used in hydraulic control system at oil-fired thermal power generation plant*”, Case Study in Engineering Failure Analysis (CSEFA), Pages 21-27, Volume 8 (April 2017), ISSN: 2213-2902 (CiteScore: 1.10, SNIP: 1.751, SJR: 0.616)  
<http://dx.doi.org/10.1016/j.csefa.2017.01.001>