Applicant Name: Engr. Sofia Alberto
Engineering Occupation: Electrical Engineer **(233311)**
EA Category: Professional Engineer

1. Continuing Professional Development (CPD)

I have consistently engaged in Continuing Professional Development (CPD) to enhance my technical expertise and professional skills as an Electrical Engineer. These learning activities have enabled me to stay updated with modern technologies, safety regulations, and engineering management practices.

- Advanced Power Systems Analysis – 25 Hours – IEEE Online Training (2023)
- Occupational Health & Safety Engineering – 15 Hours – Industrial Workshop (2023)
- PLC and SCADA Systems Certification – 30 Hours – Technical Institute (2024)
- Project Risk Management – 12 Hours – Coursera (2024)
- Renewable Energy Integration Seminar – 10 Hours – Engineering University (2024)

These activities strengthened my analytical capabilities, system design proficiency, risk management approach, and awareness of sustainable engineering solutions.

2. Career Episode 1 – Power Distribution System Upgrade

Introduction

Project Title: Industrial Power Distribution Upgrade
Duration: Jan 2021 – Aug 2021
Location: Dubai, UAE
Organization: Gulf Energy Solutions

Background

The project aimed to upgrade an aging industrial power distribution system to improve efficiency, safety, and reliability. The facility experienced frequent breakdowns due to overloaded circuits and outdated switchgear.

Personal Engineering Activity

I conducted site inspections and gathered load data. I analyzed power demand using ETAP software and identified imbalance and voltage drop issues. I redesigned the distribution layout, selected new transformers and circuit breakers, and prepared

technical drawings. I coordinated with contractors, ensured installation followed IEC standards, and supervised testing and commissioning. I resolved harmonics issues by introducing harmonic filters, which stabilized system performance.

Summary

The upgraded system reduced failures by 35% and improved energy efficiency. This project enhanced my expertise in load analysis, protection systems, and compliance with international electrical standards.

3. Career Episode 2 – Solar Farm Grid Integration

Introduction

Project Title: 10MW Solar Farm Grid Connection
Duration: March 2022 – Dec 2022
Location: Abu Dhabi, UAE
Organization: SunGrid Technologies

Background

This project focused on integrating a large-scale solar farm into the national grid while ensuring stability and compliance with grid codes.

Personal Engineering Activity

I performed feasibility studies and calculated expected power output. I designed inverter configurations and protection systems. I used MATLAB simulations to analyze voltage stability. I coordinated with grid authorities for approvals and ensured synchronization procedures were correctly implemented. During testing, I identified frequency fluctuation issues and resolved them by adjusting inverter control parameters.

Summary

The project successfully delivered renewable power to over 5,000 homes. It strengthened my skills in renewable integration, simulation, and grid compliance.

4. Career Episode 3 – PLC Automation in Manufacturing Plant

Introduction

Project Title: Production Line Automation
Duration: Feb 2023 – Oct 2023

Location: Doha, Qatar
Organization: TechMech Industries

Background

The project aimed to automate a manufacturing line to reduce manual intervention and increase production efficiency.

Personal Engineering Activity

I developed PLC programs using Siemens TIA Portal, configured sensors and actuators, and integrated SCADA monitoring. I performed system testing and troubleshooting. I optimized process timing, reducing cycle time by 20%. I trained technicians and ensured compliance with safety protocols.

Summary

Automation improved output quality and reduced downtime. I gained strong expertise in industrial automation and system optimization.

5. Summary Statement

This Competency Demonstration Report highlights my engineering knowledge, analytical skills, and professional competence demonstrated across multiple projects.

- Applied electrical engineering principles in power distribution upgrade (CE1)
- Solved complex grid integration challenges in renewable energy project (CE2)
- Implemented automation solutions improving industrial productivity (CE3)
- Maintained safety, ethical standards, and teamwork throughout all projects

Through these experiences, I demonstrated problem-solving ability, technical leadership, effective communication, and commitment to professional engineering practice.