**PROFESSIONAL ENGINEER Summary Statement**

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| **Competency Element** | **A summary of how you have applied the element** | **The paragraph in the career episode(s) where the element is addressed** |
| **PE1 KNOWLEDGE AND SKILL BASE** | | |
| PE1.1 Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline. | I studied the basic working of the streetlight and understood the control mechanism through different ways.  I did the study on armored cables, stranded cables along with MC cables with PVC.  I did researched on different methods like watts per square meter methods, lumen method. | CE 1.4, CE 2.7, CE 3.8 |
| PE1.2 Conceptual Understanding of the mathematics, numerical analysis, statistics and computer and information sciences which underpin the engineering discipline | I designed the required circuit in Proteus Software.  I used software like AUTOCAD to get accurate design specifications and applied the basis of electrical design technology to get approved values.  I estimated the maximum load and also considered maximum cable length. According to IEE regulation, I considered the maximum permissible voltage to 2.5%.  I calculated the amount of power required for the district by classifying the plots into four parts such as low density, medium-density, high density and street lighting. | CE 1.6, CE 2.8, CE 3.9 |
| PE1.3 In-depth Understanding of specialist bodies of knowledge within the engineering discipline | I researched about the comparator, flip-flop and different terminologies related to the project.  I submitted the calculated parameters to the operators of the injection substation and thoroughly explained the power demand by the consumers and recommend them to increase the ratings of the power devices and switchgear.  I personally enumerated the numbers of poles (load) with their individual ratings In order to come up with the appropriate sizes of the package substation. | CE 1.4, CE 2.8, CE 3.6 |
| PE1.4 Discernment of knowledge development and research directions within the engineering discipline | I assessed various previous works done in the similar topic and took knowledge from them regarding the control panel of the streetlight for its automatic control.  I made sure proper electrical earthing materials were used by making sure all-metal casing were earthed using the Protective Multiple Earthing System (PME).  I prepared a design concept for the telecom duct by considering the nature of distribution. | CE 1.4, CE 2.15, CE 3.9 |
| PE1.5 knowledge of contextual factors impacting the engineering discipline | I worked on a generalized block diagram of the process to be followed in the project.  I presented my knowledge of practical engineering-related factor to the projects by the methods and innovations I brought in. This includes the type of integrated circuit which I used in the design of the streetlight control panel, and the trenching that had to be done for the low voltage and high voltage cable. Also, I made sure they conformed to the rules and regulations of IEE and NEMSA. I made sure electrical standards were accurately followed. | CE, 1.5, CE 2.9, CE 2.11,CE 2.12,CE2.13, CE 3.7, CE 3.9 |
| PE1.6 understanding of the scope, principles, norms, accountabilities, and bounds of contemporary engineering practice in the specific discipline | The main objective of the project was the need to conserve power during the day when the streetlight is left ON without switching OFF by the manual operator.  In executing the projects, I followed a well-structured approach to get optimal results in the prescribed time limit. The contractual terms were well adhered, and the issue of litigation and disagreements were avoided. I had supervisors whom I was taking instructions from, which imparted and broadened my knowledge in electrical engineering. Also, I had to pass some information and impart people that worked under me. | CE 1.3, CE 2.6, CE 2.7, CE 2.9, CE 2.10, CE 2.11, CE 3.6, CE 3.8, CE 3.9 |
| **PE2 ENGINEERING APPLICATION ABILITY** | | |
| PE2.1 Application of established engineering methods to complex engineering problem solving | I identified and analyzed problems as well as researched and recommended innovative solutions to these problems. | CE 2.6. CE 2.8 CE 2.11 CE 2.13 CE 3.9 CE 3.10 CE 3.11 |
| PE2.2 Fluent application of engineering techniques, tools, and resources | In the flip-flop stage, I used D flip-flop in order to start and stop the lighting process based on its set and reset conditions.  I used my professional knowledge of electrical engineering to solve complex engineering problems that occurred during the project. I leveraged on engineering software and equipment to accelerate the project. | CE 1.6, CE 1.4, CE 2.6, CE 2.8, CE 2.9, CE 3.8, CE 3.9, CE 3.16 |
| PE2.3 Application of systematic engineering synthesis and design processes | I designed the oscillator stage where I used a 555 timer as an astable oscillator stage with 1kHz frequency.  In all the projects, I carried out proper and extensive research of the designs to resolve and avoid future challenges that comes up. I took immediate action and made prompt decisions after consulting my superior to resolve issues. | CE 1.7 CE 1.4, CE 2.6, CE 2.8, CE 2.12, CE 2.16, CE 3.6, CE 2.17 CE 3.6 |
| PE2.4 Application of systematic approaches to the conduct and management of engineering projects | My projects met all the stipulated objectives I made sure the BEME was followed to details. After the projects, we were appreciated.  I offered the speedy resolution to the projects' problems and ensured the progressing job was not truncated at any time. I had a full focus on cost to be in the stipulated budget. | CE 2.14, CE 3.13 |
| **PE3 PROFESSIONAL AND PERSONAL ATTRIBUTES** | | |
| PE3.1 Ethical conduct and professional accountability | My projects were detailed to follow my organization and stakeholders' satisfaction. All my projects were accepted and praised by the organization and stakeholders.  In the projects, I identified technical issues and addressed them accordingly.  I made use of engineering standards IEE, ANSI, and NEMSA during the projects. | CE 2.10, CE 2.11, CE 3.9 |
| PE3.2 Effective oral and written communication in professional and lay domains | I put up a comprehensive documentation of the progress of work in my projects in language that is easily understood, which is English. I prepared a report for materials supplied to the site, job execution report, and details of the labor force, complaints, and solutions brought up.  I also arrange meetings with stakeholders to know their grievances and ways to proffer solutions to the issues bothering them .the meetings also include getting feedback from the stakeholders, which gives my organization job satisfaction. | CE 2.16, CE 2.17 CE 3.14, CE 3.16 |
| PE3.3 Creative innovative and proactive demeanor | I coordinated with the other professional and identify new developments. The prompt response ensured timely resolutions and meeting the deadlines of the projects. | CE 1.4 CE 2.6 CE 2.8 CE 2.9 CE 2.16 CE 3.14 CE 3.16 |
| PE3.4 Professional use and management of information | I used my engineering knowledge and skills I have acquired professionally to address issues to meet the desired goals and objectives of the project. I analyzed the basic plans and strategies pertaining to the construction of district projects and ensured proper on-time for the delivery of the project. | CE 2.6 CE 2.9 CE 2.10 CE 2.11 CE 2.12 CE 3.8 CE 3.9 CE 3.16 |
| PE3.5 Orderly management of self, and professional conduct | At all stages of the projects, I was very mindful of the time. Hence, I was able to complete my projects on time. I gathered substantial engineering knowledge and expertise in my projects and grew in professional confidence.  I ensured safety and protection at all stages of the projects. I utilized personal protective equipment while working on various tasks during the projects. | CE 2.13 CE 2.15 CE 2.18, CE 3.12 |
| PE3.6 Effective team membership and team leadership | I cooperated with team members of both the electrical and civil engineering team to ensure the successful accomplishment of the projects I was involved in. I settled any encumbrances and conflicts that might have occurred among my team members in the workplace; I made sure effective communication and coordination are ensured amongst them.  I actively took part in weekly site meetings with the head of the electrical team and subsequently with chief Resident Engineer to discuss the progress of work, achievement, and the issues that occurred during the execution of the project. | CE 2.8, CE 2.16 CE 2.17 CE 3.14 CE 3.16 |