**PROFESSIONAL ENGINEER**

**Summary Statement**

**These are the competency Units and Elements. These elements must be addressed in the Summary Statement (see Section C). If you are applying for assessment as a Professional Engineer, you will need to download this page, complete it and lodge it with your application.**

|  |  |  |
| --- | --- | --- |
| **Competency Element** | **A brief summary of how you have applied the element** | **Paragraph number 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 gained information regarding different techniques of feeding such as the aperture coupled, proximity coupled, microstrip feed line, and the coaxial feed process. | B.3.1 |
| PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics and computer and information sciences which underpin the engineering discipline | I assumed the generation of the path of flow of current in the strip at a mid resonating frequency as f= c/ 4L1.E. I found that the current centralized in the nearby section of the trapezoid slot was generating peak frequency. I added a pair of horizontal symmetrical strips to the slot and achieved mid-frequency. | B.3.3 |
| PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline | I introduced the defective ground structure by etching the ground plane slots of the microwave circuit. | B.3.2 |
| PE1.4 Discernment of knowledge development and research directions within the engineering discipline | I gained ideas related to the process of detecting the electric field line. I determined different parameters for detection of the performance like the gain, directivity, width of the band, pattern of radiation, return loss, and the VSWR. | B.3.1 |
| PE1.5 Knowledge of contextual factors impacting the engineering discipline | I prepared the top section, bottom section, and side section o the antenna implementing its length, width, breadth, and depth | B.3.2 |
| PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline | I formed the model of a triple-band compact slot microstrip antenna possessing substrate, ground, and the microstrip feed line. | B.3.2 |
| **PE2 ENGINEERING APPLICATION ABILITY** | | |
| PE2.1 Application of established engineering methods to complex engineering problem solving | I determined that the formed antenna was not better enough to be applied for the application of the WiMAX and the WLAN. I applied optimum width of 2 mm. I was able to obtain proper impedance matching of the antenna. I also noticed better bandwidth and gain after solving the problem. | B.3.6 |
| PE2.2 Fluent application of engineering techniques, tools and resources | I provided a complete antenna size dimensioning of 34\* 29\*1.5mm2. I determined that with increment in the strip length, there was a shift in the third and second resonance towards the lowermost section. I detected the width of the strip possesses a greater impact on the characteristics of the return loss and hence I chose optimal width of 2 mm to achieve better matching of impedance of the antenna. | B.3.2  B.3.4 |
| PE2.3 Application of systematic engineering synthesis and design processes | I determined in the XZ- plane the dipole-like pattern existed and in the Omni-direction-like radiation pattern was existed in the plane YZ. From the results measured, I determined that the impedance bandwidth was 22%, 12%, and nearly 23 % respectively which was better enough for the applications of WiMAX and the WLAN. | B.3.5 |
| PE2.4 Application of systematic approaches to the conduct and management of engineering projects | I formed the Gantt chart reflecting all the procedures to be performed and the activities to be conducted within the period. | B.3.8 |
| **PE3 PROFESSIONAL AND PERSONAL ATTRIBUTES** | | |
| PE3.1 Ethical conduct and professional accountability | I referred to the IEEE 802.11 WLAN standards and IEEE 802.16 WiMAX standards for designing and simulating a micro strip patch antenna having three operating band suitable for WiMAX and WLAN networks. I also referred to the IEC 60417 antenna standards and IEEE 149-1997 antenna testing procedure standards for designing and analyzing the performance of designed micro strip antenna. | B.3.9 |
| PE3.2 Effective oral and written communication in professional and lay domains | I updated the activities of the project as per the suggestion of the project supervisor. | B.3.8 |
| PE3.3 Creative innovative and proactive demeanour | I formed the graph reflecting peak gain in the highest direction of each of the necessary points for frequency | B.3.7 |
| PE3.4 Professional use and management of information | I made good terms with the project supervisor. I maintained a progress report of the project and discussed it with my team. | B.3.8 |
| PE3.5 Orderly management of self, and professional conduct | I also lead my team to carryout work related to research, design, and simulation. I formed the report reflecting all the processes. | B.3.8 |
| PE3.6 Effective team membership and team leadership | I maintained a friendly functioning atmosphere within the project period and employed all the activities. I also fulfilled the project sincerely with complete dedication and achieved the project motives. I also improved my communication skills and problem solving ability. | B.3.8  B.4 |