

PROFESSIONAL ENGINEER

Summary Statement

Competency Element	A brief summary of how you have applied the element	Paragraph in the career episode(s) where the element is addressed
PE1 KNOWLEDGE AND SKILL BASE		
<p>PE1.1 Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline</p>	<p>I used my engineering knowledge, especially my acquired in Master, for designing all parts of tunnels, galleries and trench stabilities.</p> <p>I was able to apply my engineering knowledge to estimate strength of all parts of slabs, prestressed beams, piers and abutments.</p> <p>I used my engineering knowledge, especially my acquired in Master, for designing all parts of twin tunnels, their effect on each other, galleries and trench stabilities.</p>	<p>CE1.9, CE1.10, CE1.11, CE1.12</p> <p>CE2.7, CE2.8, CE2.9, CE2.10</p> <p>CE3.9, CE3.10, CE3.11, CE3.12, CE3.13</p>
<p>PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics and computer and information sciences which underpin the engineering discipline</p>	<p>For modelling tunnel, galleries and trenches I used Flac2D, Plaxis7.2, SAP2000 and Stabl.</p> <p>I used SAP2000 for modelling and designing slab, piers and abutments.</p> <p>For modelling twin tunnels, galleries and trenches I used Flac2D, Plaxis7.2, SAP2000 and Stabl.</p>	<p>CE1.9, CE1.10, CE1.11, CE1.12</p> <p>CE2.7, CE2.8, CE2.9, CE2.10</p> <p>CE3.9, CE3.10, CE3.11, CE3.12, CE3.13</p>
<p>PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline</p>	<p>I checked the accuracy of modelling the environs with Flac2D by modelling soil and concrete and steel simultaneously (as a compound section) with Plaxis, results were as it was anticipated and were acceptable.</p> <p>I computed the bearing capacity of soil under piers and abutments' foundations according to the soil mechanic laboratory results.</p> <p>I checked the accuracy of using two foundations for tunnel and galleries sections by estimating the bearing capacity of rock and soil underneath the foundations.</p>	<p>CE1.9, CE1.10</p> <p>CE 2.9, CE2.10</p> <p>CE3.11</p>

<p>PE1.4 Discernment of knowledge development and research directions within the engineering discipline</p>	<p>I did lots of research to choose a section in which a line for compulsory stop of vehicles is considered.</p> <p>I read in different books and investigated a lot to choose optimum distance between piles to work as a group and have the best performance and efficiency.</p> <p>I took advantage of my experience and researches to appropriately prioritize parts of the project.</p>	<p>CE1.6</p> <p>CE2.9, CE2.10</p> <p>CE3.9, CE3.10</p>
<p>PE1.5 Knowledge of contextual factors impacting the engineering discipline</p>	<p>I had a great concern on selecting a choice on first phase to have better access to a famous ski ground near it.</p> <p>In order to have minimum impact on environment, I tried to select a plan in which the amount of cut and fill is lesser than others.</p> <p>I had a great concern about the global and social responsibilities. As these tunnels were twins, I should notice probability of fire and a way for getting rid of it. So an access path between two tunnels was proposed as an exit way in case of fire.</p>	<p>CE1.7</p> <p>CE2.3, CE 2.6</p> <p>CE3.7</p>
<p>PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline</p>	<p>I did my best to design the section of the tunnel lining and steel area according to the existent codes and norms.</p> <p>As my experience with related norms, I found that previous layout for prestressed cables were not suitable for this project's beam. So I did my best to lay them in a better position.</p> <p>I used paper which is a new method and bound for estimating earthquake forces for overburden structures instead of old ways of calculating .them</p>	<p>CE1.10</p> <p>CE2.7</p> <p>CE3.10, CE3.13</p>
PE2 ENGINEERING APPLICATION ABILITY		
<p>PE2.1 Application of established engineering methods to complex engineering problem solving</p>	<p>I found problems in modelling the tunnel section with Flac2D, while I compared it with plaxis7.2.</p> <p>I found problems in drawings while checking and corrected them in time for execution.</p> <p>I figured it out that I could not use the same earthquake factor for both types of galleries.</p>	<p>CE1.9</p> <p>CE2.11</p> <p>CE3.13</p>

<p>PE2.2 Fluent application of engineering techniques, tools and resources</p>	<p>I did my best to be as professional as possible in use of Plaxis, Flac2D and Sap2000.</p> <p>As I am a geotechnical engineer and I had so much experience in utilising soil test reports outputs, I could extract all needed information for designing footings in a really short time.</p> <p>I had got lots of experience using stabl software during my MS. Study, so I was really expert when I wanted to model trenches for getting their stabilities.</p>	<p>CE1.9, CE1.10, CE1.11, CE1.12</p> <p>CE2.9, CE2.10</p> <p>CE3.8</p>
<p>PE2.3 Application of systematic engineering synthesis and design processes</p>	<p>I did my best and designed tunnel lining and galleries by use of my proficiency in design.</p> <p>I employed my technical knowledge to design slab, piers and abutments.</p> <p>I designed twin Tunnel lining and galleries by use of my proficiency in engineering design.</p>	<p>CE1.10, CE1.11, CE1.12</p> <p>CE2.7, CE2.8, CE2.9, CE2.10</p> <p>CE3.8, CE3.9, CE3.10, CE3.11, CE3.12, CE.3.13</p>
<p>PE2.4 Application of systematic approaches to the conduct and management of engineering projects</p>	<p>I used my supervision experience to conduct the project efficiency; so proceeded the project on time.</p> <p>I applied my knowledge to properly model all parts of the bridge in Sap2000.</p> <p>I utilized my managing experience to carry out the project smoothly.</p>	<p>CE1.9, CE1.13</p> <p>CE2.7, CE2.9, CE2.10</p> <p>CE3.14</p>
<p>PE3 PROFESSIONAL AND PERSONAL ATTRIBUTES</p>		
<p>PE3.1 Ethical conduct and professional accountability</p>	<p>I applied proper codes and standards for designing tunnel and galleries.</p> <p>I did my best to be as responsible as possible and be accountable in designing all parts of bridges (slab & cables, piers, abutments and piles).</p> <p>I attempted to consider safety and executed the suitable standards and also newest methods for designing.</p>	<p>CE1.10, CE1.11, CE1.12</p> <p>CE2.7, CE2.9, CE2.10</p> <p>CE3.9, CE3.10, CE3.11</p>
<p>PE3.2 Effective oral and written communication in professional and lay domains</p>	<p>We divided the project into parts and each part was done by one engineer, I had to get the first results from other engineers to design tunnel and galleries. I tried to have a good communication with them to increase the project speed.</p> <p>I had good communication with other engineers and especially with drafters to facilitate the job and decrease the project</p>	<p>CE1.9, CE1.10</p> <p>CE2.6, CE2.11</p>

	<p>time consuming.</p> <p>I made constructive connection with client's representative by arranging some inspection sessions during the time which project was running to see their needs for speeding up the project construction.</p>	CE3.8, CE3.9
PE3.3 Creative innovative and proactive demeanor	<p>I made suitable changes to task order and scheduling to save time.</p> <p>I designed an efficient support for slab and girders at piers and selected the optimum distance for piles.</p> <p>I used the paper which is a new method for estimating earthquake forces for overburden structures instead .of old ways of calculating them</p>	<p>CE1.9, CE1.13</p> <p>CE2.9, CE2.10</p> <p>CE3.10, CE3.13</p>
PE3.4 Professional use and management of information	<p>For reports preparation, I used MS-Office package. I included diagrams, figures and engineering sketches in it which covered the required technical and engineering issues of project which consisted of soil mechanic laboratory result, shop drawing, estimating booklet, etc</p> <p>I saved all my documents and laboratory reports and meeting notes held during the project and used them later when useful.</p> <p>I collected all the documents and used my capability to prepare an estimation booklet.</p>	<p>CE1.13</p> <p>CE2.6, CE2.8, CE2.9</p> <p>CE3.14</p>
PE3.5 Orderly management of self, and professional conduct	<p>I applied my management skills to have a constructive effect on the people within the project getting input data, at the end having good result in a very short time.</p> <p>I had a good connection with my team, which helped the project meet its needs, and as a leader I improved my skills by working well with people.</p> <p>I managed the project efficiently and well communicated with others.</p>	<p>CE1.6, CE1.9, CE1.10, CE1.12</p> <p>CE2.11</p> <p>CE3.6, CE3.9</p>
PE3.6 Effective team membership and team leadership	<p>I used good management techniques and my engineering knowledge to raise efficiency of the project and have a good harmony between team members' responsibilities in order to reduce time and increase efficiency of the project.</p> <p>As the best path should be selected, a team was made and missioned were done; at last all information was gathered and the best choice was opted.</p>	<p>CE1.9, CE1.13</p> <p>CE2.3</p>

	<p>To have a better performance according to the project time I made drafters to work simultaneously with my estimation. Step by step I checked them. So time of the whole project decreased.</p>	CE3.14
--	---	--------

پودینا