Reflection on engineering work

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	Theoretical	CE 1. 2,

	knowledge gained from studying “ Renewable Energy Resources” , “ Mechanics of Materials” and “ Heating Ventilation and Air Conditioning” was used in the projects.	
Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline		2. 1, 2. 2
PE1. 2 Conceptual understanding of the mathematics, numerical	I used different mathematical equations for the	CE 1. 15, 1. 16, 1. 17, 1. 18, 1. 19, 3. 8,

analysis, statistics and computer and information sciences which underpin the engineering discipline	designing of Parabolic Trough. Heating and Cooling load for the Air Conditionin g were calculated using load calculation equations. CAMEL software was used to optimize the load and analyze and compare it with	3. 11, 3. 12, 3. 21

	manual calculations.	
PE1. 3 In-depth understanding of specialist bodies of knowledge within the engineering discipline	Knowledge gained in “Finite Element Methods” and analysis software ANSYS helped to analyze the drop table.	CE 2. 1, 2. 2, 2. 10
PE1. 4 Discernment of knowledge development and research directions within the engineering discipline	Sequential switching of energy resources from traditional fossil fuels to renewable	CE 1. 1, 1. 2, 1. 21

	energy resources is seeming eminent. Parabolic Trough is the future of energy sector in energy deficient countries, like Pakistan.	
PE1. 5 Knowledge of contextual factors impacting the engineering discipline	Being aware of the side effects some of fossil fuels have on the environment, helped us to use	CE 1. 2, 1. 21

	the environmental friendly Solar power to generate electricity. It reduces the carbon foot print and hence, guarantees a greener and healthier future.	
PE1. 6 Understanding of the scope, principles, norms, accountabilities and bounds of	Being project leader the responsibility laid on my shoulders to ensure	CE 1. 8, 2. 7, 3. 5, 3. 7

	successful timely completion of the project. For this I
contemporary engineering practice in the specific discipline	employed Primavera and Microsoft Project software to finish the project within given timeline.
PE2 ENGINEERING APPLICATION ABILITY	
PE2. 1 Application of established	Working on CE 1. 21 renewable energy

	project incited students and industrialists to use this energy source to power their needs. And I visited them to help them design the projects.	
engineering methods to complex engineering problem solving		
PE2. 2 Fluent application of engineering techniques, tools and resources	I used the VRV system instead of the Central Air Conditioning as it is more energy	CE 2. 2, 2. 10, 3. 4, 3. 21, 3. 22

	efficient and gives more control.	
	I used CAMEL to analyze the manual load calculations and suggest changings in the structure of building.	
	ANSYS was used to analyze the drop table for the drop test.	
PE2. 3 Application of systematic	In each project I followed	CE 1. 21

engineering synthesis and design processes	the engineering design process i. e. Defined the problem, searched for solution and picked a solution and developed it (Solar Power Plant). At the end, I prepared the report for each project including all experiments in systematic

	order.	
PE2. 4 Application of systematic approaches to the conduct and management of engineering projects	I used my management skills and software i. e. Primavera and Microsoft Project to keep track of the progress and finish it within given time.	CE 1. 7, 1. 8, 2. 7, 3. 5, 3. 7
PE3 PROFESSIONAL AND PERSONAL ATTRIBUTES		
PE3. 1 Ethical conduct and	Before the start of	CE 1. 8, 1. 9, 1.

	each project I made sure that my team follows the predefined guide lines to ensure professiona	
professional accountability	l and ethical conduct. Safety talks before every critical activity helped to achieve this goal.	20, 2. 14
PE3. 2 Effective oral and written	I presented my Final Year	CE 1. 21

	Project (Solar Trough) in front of project supervisor, Chairman of Mechanical Engineering department and an external examiner.	
communication in professional and lay domains		
PE3. 3 Creative innovative and proactive demeanour	Used economical techniques to select the Concentrated Solar Power technology, which	CE 1. 10

	need small absorbing surfaces and large reflective surfaces. Absorbing materials are more expensive than the reflective surfaces.	
PE3. 4 Professional use and management of information	I kept record of all the meetings by writing minutes of meetings at the end of each meeting. Prepared the project	CE 1. 5, 1. 8, 1. 9, 2. 7, 3. 5, 3. 7

	reports using all the experimental and theoretical knowledge.	
PE3. 5 Orderly management of self, and professional conduct	My leadership skills and professional attitude during my final year project helped me to be leader in next two projects as well. Leading project teams more than	CE 1. 7, 2. 1, 3. 5

	once groomed my leadership skills and helped to enhance my professiona l conduct.	
PE3. 6 Effective team membership and team leadership	My leadership in the projects was effective enough to finish the projects well in time and in good team spirit. I inspired my team	CE 3. 5, 2. 11,

members

to work

through

difficult

situations

and solve

issues

without

being

stressed

out.