**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.**

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| **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 performed a comprehensive study for the fundamental knowledge of EVD and learned about hysteretic damping and elastic damping. | C.3.1 |
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| PE1.2 Conceptual understanding of the mathematics, numerical analysis, statistics and computer and information sciences which underpin the engineering discipline | I adopted the quantitative approach for the project. I collected the data from an experiment from the previous studies from the literature review and analyzed them based on the different affecting parameters such as ductile displacement, Axial Load Ratio (ALR), unidirectional Vs bidirectional lateral loading, bidirectional loading path in detail. | C.3.2 |
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| PE1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline | I learned all the material available to date related to the EDV. I learned about the mechanism of load dissipation of seismic load in the structure at the time of the earthquake and how it affects the RC column. | C.3.1 |
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| PE1.4 Discernment of knowledge development and research directions within the engineering discipline | I learned about the EVD application in Earthquake Engineering and learned about the displacement-based analysis for EVD during the period of the earthquake. I did the analytical study of the many papers related to the viscous damping ratio for RCC elements at the period of the earthquake. | C.3.1 |
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| PE1.5 Knowledge of contextual factors impacting the engineering discipline | I collected the data of detailed design of RC column from the experiment performed by Rza et al, 2020 which contained the RC column specimens from S1 to S6 were tested for unidirectional loading in the lateral direction and specimen S7 to S12 were tested for bidirectional loading in the lateral direction. I also collected the result data from an experiment performed by Rodrigues et al. | C.3.2 |
| I collected the data of detailed design of RC column from the experiment performed by Rza et al, 2020 which contained the RC column specimens from S1 to S6 were tested for unidirectional loading in the lateral direction and specimen S7 to S12 were tested for bidirectional loading in the lateral direction. I also collected the result data from an experiment performed by Rodrigues et al. | C.3.2 |
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| PE1.6 Understanding of the scope, principles, norms, accountabilities and bounds of contemporary engineering practice in the specific discipline | I collected the unidirectional and bidirectional force and displacement data from Raza and I investigated his program experiment to observe the behavior of the RC column at collapse. I further observed the different parameters such as ALR, reinforcement in transfers direction, and loading path from the program experiment. | C.3.3 |
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| **PE2 ENGINEERING APPLICATION ABILITY** | | |
| PE2.1 Application of established engineering methods to complex engineering problem solving | I used only those parameters whose effect on the EVD is dominant and comparatively understood better than the other. I then selected the ALR parameters for the analysis of the EVD of the RC column system at the period of the earthquake. | C.3.7 |
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| PE2.2 Fluent application of engineering techniques, tools and resources | I observed and analyzed the ALR from the data obtained from the experiment as ALR highly affects the dissipation of the energy by the system. I plotted the data for EVD ratio and ALR for all the specimens from the experiment and analyzed the ALR and EVD pattern. | C.3.5 |
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| I observed and analyzed the ALR from the data obtained from the experiment as ALR highly affects the dissipation of the energy by the system. I plotted the data for EVD ratio and ALR for all the specimens from the experiment and analyzed the ALR and EVD pattern. | C.3.5 |
| PE2.3 Application of systematic engineering synthesis and design processes | I observed the loading path effect on the EVD by studying the experiment data for the RC concrete tested for axial loading with cyclic action. From the Raza experiment data for both unidirectional and bidirectional loading in the lateral direction, I observed the RC column specimen have a different path for loading although ALR was the same for the specimen. | C.3.6 |
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| PE2.4 Application of systematic approaches to the conduct and management of engineering projects | I divided the whole project into many parts to work from whole to part and I worked with a determined strategy to carry out my tasks with creativity. | C.3.9 |
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| **PE3 PROFESSIONAL AND PERSONAL ATTRIBUTES** | | |
| PE3.1 Ethical conduct and professional accountability | I referred to the IS 4326:1993 Code of practice for earthquake-resistant buildings while carrying out this project for examining the damping behavior of RC columns under earthquake actions. I also followed IS 13920-1993 Ductile details of RC frames code and IS 456-2000 Plain and RC building codes for studying the damping behavior of RC columns. | C.3.10 |
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| PE3.2 Effective oral and written communication in professional and lay domains | I conducted many meet sessions and informed my supervisor about the whereabouts of the project and the necessary task of the project. | C.3.9 |
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| PE3.3 Creative, innovative and proactive demeanour | I selected the experiment data which contained diversification of the size of the column and mean strength of the concrete in the column as well as with different loading paths to make the analysis more effective and to obtain a more fruitful outcome. I made the structure of the project before starting the project to estimate the project time and also to manage the project task more effectively. | C.3.8 |
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| PE3.4 Professional use and management of information | After completing each step of the project, I created a report of the task to evaluate the project and also discussed the next step in the project and how to approach the step effectively. | C.3.9 |
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| PE3.5 Orderly management of self, and professional conduct | I was able to complete all of my works according to the schedule and also within the track of time. | C.3.9 |
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| PE3.6 Effective team membership and team leadership | I learned about the application of skills and knowledge to complete the project in a successful way. I got to learn various skills including technical skills and management skills. I also manage the time schedule along with the resources and quality. | C.4 |
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