



APPENDIX IV: COMPETENCE FRAMEWORK

S/N	Competence Standards (CS)	Competence Indicator (CI)	Achievement of Range of Competence Indicators (RCI)	Score Claimed
1	Knowledge and understanding of engineering in the field of own profession	1. Maintaining and extending a sound theoretical knowledge-based approach in developing a specific professional role in the organization/Institution	a. Formal trainings related to the individual's role in the profession within the organization/Institution	
			b. Learning and developing new/innovative engineering knowledge in industry or role in the profession or in the organization/Institution	
			c. Understanding of the current and emerging technology and technical best practices in the area of expertise	
			d. Learning and developing new/innovative engineering theories and techniques in the related profession and publication of the same to the peer reviewed journals or publication of completed project reports	
		2. Developing/contributing technological solutions to complex or challenging problems	a. Developing a broader and deeper knowledge base through research and experimentation (completed Ph. D. Degree in the relevant profession/) or carrying out technical research and development within the institution/organization	
			b. Carrying out complex and/or innovative technical analyses or Developing solutions involving complex or multi- disciplinary technology	
			c. Developing and evaluating continuous improvement of a functional systems	
			d. Transfer acquired knowledge and technology to other institutions/ departments/ societies	

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2	Design, development and solving engineering problems	1. Taking an active role in the identification of project requirements, problems/issues and opportunities	a. Identifying problems for technical improvements regarding products, processes/systems or establishing user requirements for the design and development	
			b. Preparing and reviewing specifications or tenders/bid documents to identify technical issues and potential improvements	
			c. Carrying out technical risk analysis and identifying mitigation measures considering	
			d. and implementing new and emerging technologies or supervising the Ph. D./Master's level (completed) dissertation with the results of novelty and economic impact to the society , or having patent in the development of specific product or process or improvement of systems.	
			e. Conducting Technical Audits of the projects related to the profession, or Conducting assessment of engineering or safety compliance of the projects	
		2. Conducting appropriate research to undertake the design, development and analysis required to complete an engineering task and conduct these activities effectively	a. Investigating technical issues, identifying potential solutions and determining the factors needed to improve the system	
			b. Developing new designs, processes or systems based on new or evolving technology (in academics or in the profession)	
			c. Identifying and carrying out physical tests or trials and analyzing and evaluating the results or carrying out technical simulations or mathematic modeling and analysis	

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		3. Implementing engineering design solutions and evaluation of their effectiveness.	d. Carrying out engineering designs giving due consideration to costs, quality, risks, safety, environmental impact, intellectual property issues	
			a. Implementation of design solutions, taking account of critical constraints, including due concern for safety, sustainability and disposal or decommissioning	
			b. implementing lessons learned from the experiences and practices of previous projects	
			c. Evaluating existing designs or processes and identifying faults or potential improvements including risk, safety and life cycle considerations	
			d. Actively learning from feedback on results to improve future design solutions and build best practice	
3	Responsibility, management and leadership	1. Planning the work and resources needed to enable effective implementation of a specific engineering task or project	a. Understanding the future scenario and identify the weakness or strength in the projects or programs	
			b. Preparing budgets/resources and associated work programs for projects or tasks	
			c. Systematically reviewing the factors affecting the project implementation including safety, and sustainability and carrying out a task or project risk assessment and	
			d. identifying mitigation measures	
			e. Negotiating and agreeing arrangements with clients, colleagues, contractors and other stakeholders, including regulatory bodies and ensuring that information flow is appropriate and effective	

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		2. Managing (organize, direct and control), program or schedule, budget and resource elements of a significant engineering task or project	a. Operating or defining appropriate management systems including risk registers and contingency systems	
			b. Managing the balance between quality, cost and time	
			c. Monitoring progress and associated costs and cost forecasts, taking appropriate actions when required	
			d. Establishing and maintaining appropriate quality standards within legal requirements	
			e. Interfacing effectively with clients, contractors and other stakeholders,	
		3. Leading the teams or technical specialists and assist others to meet changing technical and managerial needs	a. Leading and convincing the team to achieve the objectives & work plans, assessing team and individual performance, thereafter providing the feedback	
			b. Accomplishing the role of the member for drafting/preparing the legal documents for Government agencies (National/Provincial) such as Acts, rules, directives, guidelines and other relevant documents for technical aspects or providing specialist knowledge, guidance and input in the specialization to engineering teams, engineers, clients, management body and relevant stakeholders	
			c. Developing and delivering a teaching module at Masters level, or leading a university research program or obtaining the national recognition (professional leadership awards) on the completion of the engineering project of national importance by the Professional Society/Government agencies.	

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			d. Contributing (as the member) in the Technical Committees formed by the Minister/Department level decisions (central or provincial) to resolve specific technical issues in the related profession	
			e. Leading the professional societies (related profession) or leading the management team of the national/international level event (such as conferences, symposium or workshops) of the society	
		4. Result oriented: Bring about continuous quality improvement and promote best practice for achieving project goals	a. Promoting the quality performance in the organization as well as its clients and stakeholders	
			b. Developing and maintaining operations to meet quality standards,	
			c. Supporting or directing project evaluation and proposing recommendations for improvement	
			d. Implementing and sharing the results of lessons learned to achieve the project goals	
			e. Leading the technical committee (or member) for recommending policies, strategies, and actions for continuous quality improvement of system or organization by resolving technical or managerial issues for its sustainability and achievement of objectives.	
4	Evaluation of outcomes of the engineering	1. Evaluation of project or system outcomes	a. Evaluating the outcomes and impacts of complex activities and projects	b.
			c. Performing, analyzing, and reviewing short-term and long-term planning for operational work of a project	d.

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	projects and systems		e. Assessing the project needs, overseeing or conducting design, reviewing technical documents, and providing support to manage the project	f.
		2. Commercial ability to manage and control the project activities	a. Preparing, managing, and controlling costs/budgets of engineering projects,	
			b. Applying comprehensive knowledge of legal and commercial frameworks within the area of responsibility	
			c. Preparing and evaluating the BOQs with respect to the overall budgetary requirements of an engineering project,	
5	Communication and interpersonal skills:	1. Communicating effectively with others, at all levels, in English or in the language of comfort	a. Preparing reports, drawings, specifications and other documentation on complex technical matters	
			b. Leading, chairing, contributing to recording meetings and discussions or engaging or interacting with professional networks,	
			c. Exchanging information and providing advice to technical and non-technical colleagues	
			d. Leading (or member) the editorial board of the Professional journal in the field of own profession	
		2. Presenting effectively, conduct discussions on	a. Contributing in publication of scientific/technical papers or articles as an author or coauthor	

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		the proposals, justifications and conclusions	b. Preparing and delivering presentations on strategic matters	
			c. Preparing and understanding bids, proposals or studies	
			d. Presenting the design, construction progress and other technical issues completed by the team of experts,	
		3. Demonstrating personal and social skills and awareness of diversity and inclusion issues.	a. Knowing and managing own emotions, strengths and weaknesses	
			b. Being confident and flexible in dealing with new and changing situations	
			c. Creating, maintaining and enhancing working relationships, and managing conflicts	
			d. Being supportive towards the needs and concerns of others, especially where this relates to diversity and inclusion	
		4. Judgement and decision making	a. Demonstrating the decision-making ability on the complex projects	
			b. Performing independently on technical matters in the assigned field of expertise	
			c. Maintaining and demonstrating the capability of holding the decision-making positions in the institution/organization	
			d. Applying and demonstrating the professional judgement or demonstrating and maintaining the high-level integrity in making decisions	
6	Professional		a. Demonstrating compliance with the relevant Code of Professional Conduct,	

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	Conduct	1. Understand and comply with relevant codes of conduct	b. Identifying aspects of the Code which are particularly relevant to own role	
			c. Being aware of the legislative and regulatory frameworks relevant to the role	
			d. Involvement and contribution in relevant legislation and regulatory frameworks, including social and employment legislation,	
		2. Understanding the safety implications of their role and manage, apply and improve safe systems of work	a. Identifying and taking responsibility for own obligations related to the health, safety and welfare issues	
			b. Ensuring that concerned systems satisfy requirements for occupational health, safety and welfare	
			c. Involvement in developing and implementing appropriate hazard identification and risk management	
			d. Applying a sound knowledge on occupational health and safety legislations or participating in the social, public health, safety and environmental awareness campaign programs (institutional or individual)	
		3. Understanding the principles of sustainable development and apply them in their work	a. Performing responsibly, taking account environmental, social, economic and good governance,	
			b. Providing services to enhance the quality of the environment and community, and understand constraints	
			c. Recognizing the principles of sustainability in the project implementation and ensure	

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			stakeholder involvement in sustainable development	
			d. Using resources efficiently and effectively in projects to minimize environmental impact in the concerned sector	
		4. Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner.	a. Understanding the ethical issues that may be encountered during the service or performance	
			b. Applying or upholding ethical principles as defined by the organization or company	
			c. Contributing to enhance engineering profession	
			d. Adhering to concerned code of conduct	
		5. Responsibility for decision	a. Demonstrating own obligation for decision making,	
			b. Taking decisions independently in complex activities related to the engineering projects/organizations	
			c. Taking ownership of all decisions without any obligation and pressure	
			d. Maintaining professional liability in decision making by demonstrating the effect/impact of own decision in improvement of project activities	
7	Lifelong learning	1. Carry out and record the Continuing Professional	a. Reviewing own professional development needs and planning how to meet personal and organizational objectives	

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		Development (CPD) necessary to maintain and enhance competence in their own area of practice	b. Carrying out planned and unplanned CPD activities and evaluating CPD outcomes against any plans made	
			c. Maintaining evidence of competence development records	
			d. Assisting others in planning and acquiring CPD in their respective field of expertise	
			e. Acquiring and continuing the national/international professional body/society membership	
		2. Specialization of your field of engineering and knowledge transfer to the new generation	a. Contributing to the national/international professional body/society	
			b. Regularly assessing own competence and continually acquire new knowledge and skills.	
			c. Maintaining a concise description of your areas of competence.	
			d. Carrying out engineering works within the areas of own competence.	
			e. Mentoring or guiding the junior professionals for their career upgrading	

