NEPAL ENGINERING COUNCIL

PROFESSIONAL ENGINEERS' REGISTRATION WORKING PROCEDURE 2025

GUIDELINES FOR APPLICANTS

Minbhawan, Kathmandu

2025

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TABLE OF CONTENT

ABBREVIATIONS

CAD	Computer Aided Design
CEng	Chartered Engineer
CPD	Continuing Professional Development
CPEng	Chartered Professional Engineer
CR	Career Report
EC	Evaluation Committee
GoN	Government of Nepal
ICT	Information and Communication Technology
IEA	International Engineering Alliance
IntPE	International Professional Engineer
IPEA	International Professional Engineers Agreement
IT	Information Technology
NEC	Nepal Engineering Council
NPL	Nepal
NRs.	Nepali Rupees
PE	Professional Engineer
PES	Professional Engineering Services
PPA	Public Procurement Act
PPMO	Public Procurement Monitoring Office
PPR	Public Procurement Rules
RE	Registered Engineer
WTO	World Trade Organization

1. INTRODUCTION

1.1 TITLE OF THE PROFESSIONAL ENGINEER

The Nepal Engineering Council (NEC) was established in 1999 by the promulgation of Nepal Engineering Council Act, 1999 (the first amendment, 2022) for promoting the engineering profession and mobilize it in a systematic and scientific manner in Nepal. Furthermore, NEC is mandated to register the individual engineers as per their qualifications they acquired. Similarly, NEC shall take care the capacity building activities of the Nepalese engineers in their respective professional field. Nepal Engineering Council Rules, 2001 (third amendment, 2023) has categorized the engineers into the ordinary, professional and non-Nepalese (foreigner) Engineers. As per the prevailing rules and guidelines, NEC started the registration of Professional Engineer (PE) since 2018. The amendment of the NEC rules in 2023, an ordinary registered Engineer with the Master's level academic qualification (in relevant engineering subjects) is eligible as an applicant for this title. At the same time, he shall acquire the professional experience of minimum of seven years after the master's level in engineering. The applicant shall pass the criteria of specific professional competencies, written examination and the interview to hold the title of Professional Engineer in Nepal.

The title of **Professional Engineer (PE)** represents a significant professional milestone for engineers, showcasing their advanced ethical standards, technical expertise, and ability to practice engineering competently. This prestigious designation is recognized in several countries, albeit under different names:

- In the **USA** and **Canada**, the title is known as **Professional Engineer (PE)**.
- In **Australia** and **New Zealand**, it is referred to as **Chartered Professional Engineer (CPEng)**.
- In the **UK** and **Ireland**, the designation is **Chartered Engineer (CEng)**.

The **International Professional Engineers Agreement (IPEA)**, under the umbrella of the **International Engineering Alliance (IEA)**, facilitates global recognition of professional engineering qualifications. This multinational agreement sets a standard of competence for professional engineers and enables member organizations to maintain an **International Professional Engineers Register**. Engineers listed in this register are awarded the title **International Professional Engineer (IntPE)**, signifying their ability to practice internationally according to a recognized standard of excellence.

1.2 ROLE OF PROFESSIONAL ENGINEER

The role or the practice of a senior or mature professional engineer shall fulfill the competency standards mentioned in these guidelines. Generally, a senior is required to take responsibility for engineering projects and programs in the most important sense of professionalism, which can be associated with the following aspects:

- reliability in functioning of all components, sub-systems and technologies used; their integration to form a complete, sustainable and self-consistent system,
- understanding the requirements of clients, wide ranging stakeholders and of society as a whole,
- optimizing social, environmental and economic outcomes over the full lifetime of an engineering product or program,
- interacting effectively with other disciplines, professions and people; and ensuring that the engineering contribution is properly integrated into the totality of the undertaking,
- Adhering the responsibility to interpret the technological possibilities to the society, business and the government to ensure the consequences of policy decisions concerning to the costs, risks and limitations for any desirable outcome.

In many cases of practice, a Professional Engineers shall take the responsibility to conveying knowledge from multiple sources for developing solutions to the complex problems and issues. The work of a Professional Engineers can be considered as an intellectual in nature, because they are concerned with the advancement and the development of new technologies and their applications through innovation, creativity and change. The research and innovation are also important role of a Professional Engineer while advancing the science of engineering and with developing new principles and technologies. Similarly, a Professional Engineer may contribute to the continual improvement in the practices of engineering and in formulating and updating the codes and standards that govern the profession.

Managing the team appropriate to the activities, developing and leading the organization efficiently in any engineering field are considered as the major scope of a senior or Professional Engineer.

1.3 Benefits of Becoming Professional Engineer

Securing the title of Professional Engineer provides a badge of credibility to an engineer and is a clear demonstration of their ability. Engineers should take pride in their skills and abilities and the title of Professional Engineer can be seen as a formalization of this. The title of Professional Engineer also holds a status that is not just relevant to the Nepali context but also relevant in the wider engineering profession. The title of "Professional Engineer" (PE) carries several benefits, which may vary by country and region, but generally include:

- Legal Authority: PEs often have legal authority to approve and sign off on engineering plans and projects of most complex nature and significance. This means they can take responsibility for the safety and effectiveness of their work with highest quality assurance.
- Increased Career Opportunities: Many job postings for engineering positions, especially in the international positions or highly regulated industries, require or prefer candidates with a PE license. Having a PE title an engineer makes himself more competitive in the job market.
- Enhanced Credibility: Being a PE signifies that he has met rigorous education, experience, and examination requirements. This can boost your credibility and reputation among colleagues, employers, and clients. In many organizations, having a PE license can lead to faster career advancement and higher responsibilities in the engineering field.
- Global Recognition: The PE title is recognized internationally, making it easier to work on projects in different countries or collaborate with engineers from around the world. PEs often have the option to work as consultants, providing expertise and advice to a wide range of clients including international positions.
- Ethical Responsibility: PEs are bound by a strict code of ethics, which can help guide their decision-making and ensure the safety and well-being of the public.
- Quality Assurance: PEs play a critical role in ensuring the quality and safety of engineering projects, which can have a significant impact on public safety.
- Continuing Education: To maintain their PE status, engineers often need to engage in ongoing professional development, which can keep their knowledge and skills up-to-date.
- Professional Network: Becoming a PE can help to build a valuable professional network, connecting with other licensed engineers and industry experts.

It's important to note that the specific benefits of a PE title may vary depending on the engineering discipline and location.

The Government of Nepal (GoN) and other organizations, through legal provision, may introduce requirements for particular engineering roles and responsibilities to be carried out only by engineers who hold the Professional Engineer's title.

1.4 Code of Conduct

A "Code of Conduct for Professional Engineers" typically refers to a set of ethical guidelines and principles that engineers are expected to adhere to in their professional practices. These codes are often developed to ensure that engineers uphold high standards of professionalism, integrity, and responsibility. While specific code of conduct may vary by country and engineering discipline, there

are common principles that are generally expected of professional engineers.

All engineers working in Nepal must adhere to the NEC Code of Conduct as per Rule 18 of the NEC Regulation, 2001 (third amendment, 2023). The title of Professional Engineer brings further responsibility in terms of professional conduct and adhering to the code of conduct. The title of Professional Engineer can be removed in cases of misconduct as stated in the NEC Act & Regulations and the Working Procedures of the NEC related to the PEng (NPL) title.

The code of conduct for the Professional Engineers can be elaborated as mentioned below.

- Discipline and honesty: To conduct engineering service/business in a disciplined manner with honesty and integrity in a manner that does not contrary with professional dignity and interests.
- Courtesy and Confidentiality: Customers related to engineering business should be treated with courtesy in the course of business and professional information related to the customer should not be disclosed to anyone else without the customer's approval. Provided that, it is not considered that there is a restriction to disclose such information to the relevant authorities according to the prevailing law.
- Non-discrimination: No discrimination shall be made between customers on the basis of religion, race, gender and caste or any other matter while using professional knowledge and skills.
- Should only do related professional work: Should only do professional work within the field related to the subject studied or the acquired knowledge and skills or make suggestions or recommendations related to it. Regarding the work related to the subject that does not fall within your business area, you should recommend the relevant expert.
- Do not do things that are harmful to the engineering business: Should not do any improper activities that are harmful to the engineering business, other than the remuneration, allowances and facilities for providing the services provided.
- Personal responsibility: In the context of engineering business, every work that you do should be done in such a way that you are personally responsible.
- Name, position and registration no. need to be disclosed: When signing documents and details related to the engineering business, including maps, designs, specifications, estimates, etc., your name, position and registration no. should be mentioned in a way that is clearly understood.
- Do not promote and advertise in a way that causes unnecessary influence: You should not

promote and advertise in a way that unnecessarily influences the customers (clients) in relation to your business activities.

- Not be made to work on the basis of badness.
- Not to be performed any work with negligence and recklessness.
- False or fake reports or reports that are different from the facts should not be prepared or recommended during any examination.

A member who shall be convicted by a competent tribunal of criminal offence, which in the opinion of the disciplinary body renders him unfit to be a member, shall be deemed to have been guilty of improper conduct.

1.5 Professional Engineers' Registration Working Procedure

The Nepal Engineering Council (NEC) has introduced the Professional Engineers' Registration Working Procedure, 2025, which outline the official procedures for awarding the title Professional Engineer (PEng) in Nepal, denoted as PEng (NPL).

The development of these Guidelines aligns with the Professional Engineers' Registration Working Procedure, 2025, ensuring compliance with national and international standards for professional engineering qualifications. This initiative aims to establish a clear pathway for engineers in Nepal to achieve professional recognition, reinforcing their credibility and competence in both local and global contexts.

1.6 Renewal of PEng Title

The Professional Engineer (PEng) title awarded by the Nepal Engineering Council (NEC) is valid for a period of five years. Engineers holding the PEng (NPL) title must apply for renewal before the expiration of the five-year validity period. The fees and other procedure for the renewal have been mentioned in the "Professional Engineers Registration Working Procedure, 2025". The application form is provided in **Appendix Ia.** The renewal process ensures that Professional Engineers:

- Remain Actively Engaged: They must demonstrate that they have been continuously practicing as engineers during the validity period, and
- Maintain Continuous Professional Development (CPD): The renewal process emphasizes the importance of lifelong learning and professional growth.
- Supporter's recommendation on the submitted CPD record and the application.

1.7 Continuous Professional Development

At the time of the award of PEng (NPL), each individual is provided with the guide to maintain

his/her Continuous Professional Development (CPD) Records and submit to the council every year. All the CPD records received from the PEs are properly indexed and filed. These files are reviewed each year by the evaluation Committee. The CPD reports will be reviewed by the Committee and the feedback are sent to the respective PEs. The final review of the yearly CPD records during five-year durations are taken as the main criteria for the renewal of the PE Title. The Evaluation Committee shall prepare the report of the evaluation and recommends for the renewal of the PE title.

2. PE APPLICATION ROUTES

There are two possible routes for applicants to apply for the title of Professional Engineer (PE) as shown in Figure 1.

2.1 PE STANDARD ROUTE

The eligibility of the applicants in this route as mandated in the NEC rules is the minimum experience of seven years after graduation (Master's degree in the engineering discipline) from the recognized University. Furthermore, applicant shall have the minimum two years of significant responsibility in the profession. The Master's degree in engineering shall be recognized by the NEC as per the NEC Act and rules. Assessment of Competence Standards, written examination and interview are the stages of the evaluation for awarding the PE title by NEC. This title is valid for five-year period. After this period, PE title shall be renewed based on the requirements of Continuous Professional Development (CPD) records and working procedures for this purpose.

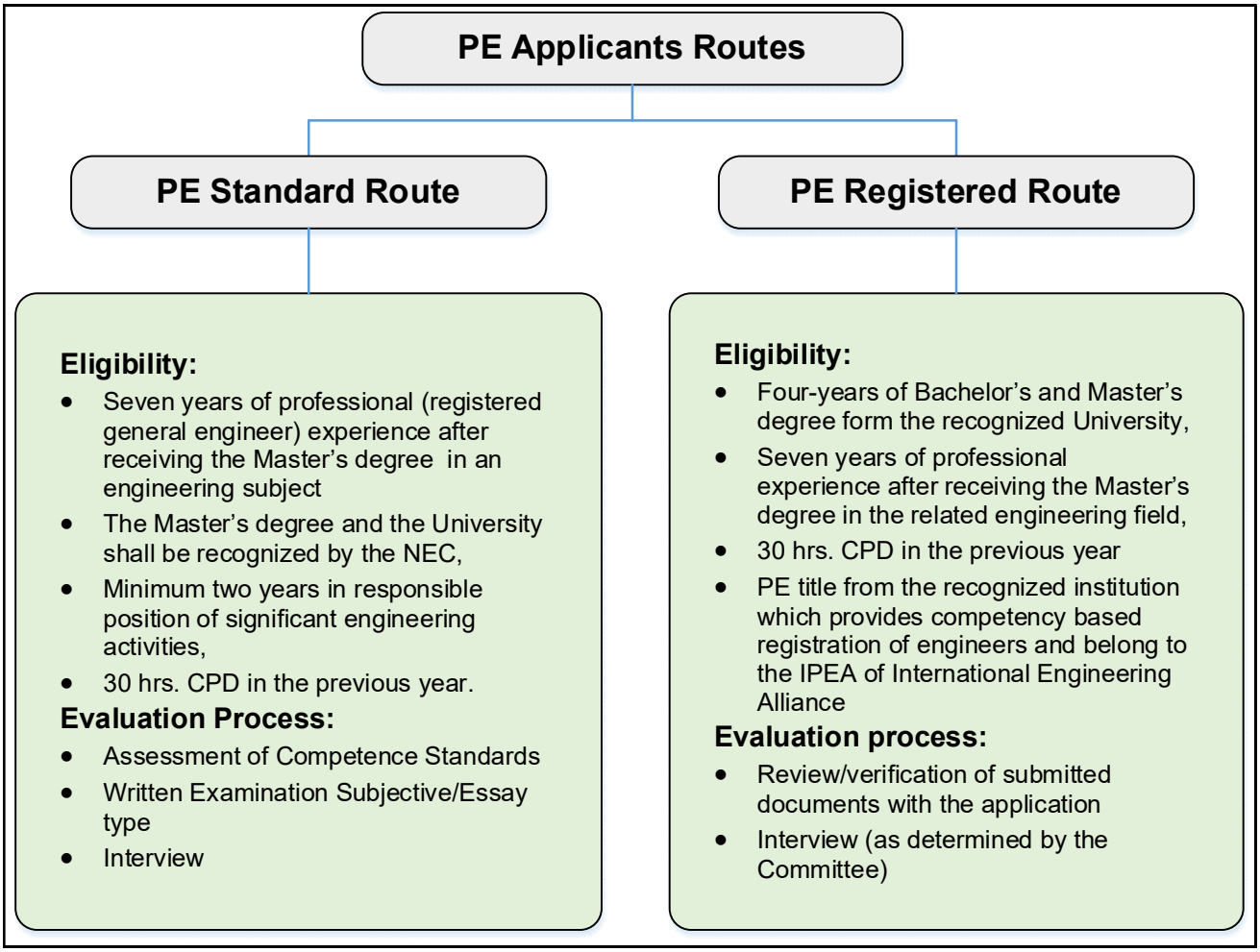

Figure 1: PE applicants' category and registration routes

2.2 PE Registered Route

An engineer (with the Bachelor's and Master's degree from recognized university) having the PE title from the recognized and competent intuitions (associated with the IEA of International engineering Alliance) can apply for the PE title in Nepal. After the review of the application, Evaluation Committee decodes the awarding criteria and conditions for the Registered PE. The validity period of the Registered PE shall be taken as five years. The renewal process is as per the criteria mentioned in the guidelines. The NEC shall conduct an orientation training (half-day duration) before awarding the PEng (NPL) title for the registered routes.

If the candidate, is not the General Registered Engineer in the NEC, then he/she shall take the written examination together with the candidates of the Standard Route.

3. REGISTRATION PROCESS FOR PE SANDARD ROUTE

The standard route of PE registration process is comprised several step-by-step procedures of evaluation of the competency as well as ethical aspects of the applicant. The brief process of the

registration is given in Figure 2. The brief procedure is explained below.

3.1 Step by Step Procedure

The registration process for the standard route for PE consists of detail review of competencies framework submitted by the candidate, written examination and interview. The step-by-step procedure is described below.

3.1.1 Self-assessment

The self-assessment of the eligibility for academic qualifications and the professional experiences is the responsibility of the applicant. The candidate shall be aware of all requirements and prepare the set of documents for the application. The documentation of the application is expected of high quality with well-managed supporting credentials. The indexed or perfectly managed file/folder shall be prepared during this stage of the PE application. In this step of the application, candidate shall assess the own eligibility and compile the required documents for PE.

3.1.2 Review by the Supporters

Candidate for the PE registration shall be recommended by two supporters. One supporter can be chosen by the applicant and another supporter will be nominated by the NEC Evaluation Committee. Candidate shall consult with the supporters at each stage of the application submission. Supporters are chosen from the previous PE registered at NEC or the PE from the IEA associated institutions. The supporters review the eligibility requirements, competence of the candidate and recommend the applicant for registration by filling the **Appendix II** (Confidential Supporter's Report Form). The sealed form shall be sent to the name of Chair of the Evaluation Committee of PE.

3.1.3 Application Submission

Nepal Engineering Council (NEC) shall mark or note down application as the content review of the required documents. If any non-conformity in the documents, the application will not be accepted. The candidate shall assure the submission of the all required documents. After the preliminary review of the document-content, application will be endorsed at the NEC and registration number is given to the applicant. The application shall contain the check-list or the table of content. The application form is provided in the **Appendix I.**

3.1.4 Confirmation of eligibility

The registered applications shall be handed over to the Evaluation Committee (EC). Each of the application will be reviewed for eligibility. Applications will be examined in detail for the acquired academic degree and the professional experiences for the eligibility. The duration of professional experiences in the relevant engineering field is assessed. Similarly, the achievement of CPD during

the previous year shall be confirmed for the eligibility of the applicant. The eligible applications are confirmed for further evaluation. The Evaluation Committee (EC) has right to reject the ineligible applications and notified to the applicant.

3.1.5 Review of Professional Competence Standards

The assessment of applicant's professional competence as mentioned in the 'Competence Framework' is evaluated based on the competence standards, indicators and achievement range of indicators. The range of achievement records are evaluated on the basis of the written statements on the respective activities by the applicants. The range of achievement records shall be supported or justified by the applicant's **'Career Report (CR)'** and other relevant documents in the application. The review of the professional experiences for the competencies is managed by the applicant in the respective field of expertise. The details of the competence standards and respective indicators are given in the **Appendix IV** (Competence Framework) of this Guidelines. The evaluation committee shall prepare the tabulation of the review results of the reviewers. The threshold the evaluation of competence indicators is the average score of 3 on the 1 to 5 rating scale. The successful candidates at this stage are informed for the next stage evaluation by written examination. The unsuccessful candidates are notified individually with the feedback on each indicator of evaluation.

3.1.6 Written Examination

The written examination is aimed at the assessment of candidate's knowledge and understanding of engineering principles, ethics, professional conduct and codes of practice. It is often based on the area of engineering in which the candidate is seeking recognition (as per the respective competency of the candidate). Candidate will be informed about the areas (from the review report of the competence framework), for the written examination. The examination is carried out in the form of subjective questions (an essay type questions).

The written examination is carried out for the assessment of the skill for the logical interpretation of their personal views of professional opinion on important topics relevant to the professional practice of engineering, as well as to demonstrate their communication skills. It is important that the essays are based on the applicant's own opinions, arguments, conclusions and analysis, and do not include large amounts of quoted text or arguments from other sources. The details of the written is described in the subsequent topic of this guidelines.

3.1.7 Interview

The successful candidate in the written examination are required to attend interview for final stage PE registration process. The interview panel is comprised of the members of evaluation committee and the external experts. The candidate has to demonstrate his communication and presentation

skills and confidence in the related field of engineering. Candidates are especially asked on the various cases of professional ethics as well as relevant problems in the field of engineering.

3.1.8 Award of PE Title

The successful candidates in the interview are notified for award of the title of 'PEng (NPL)'. NEC organizes the award ceremony for felicitation of the PEng (NPL) title.

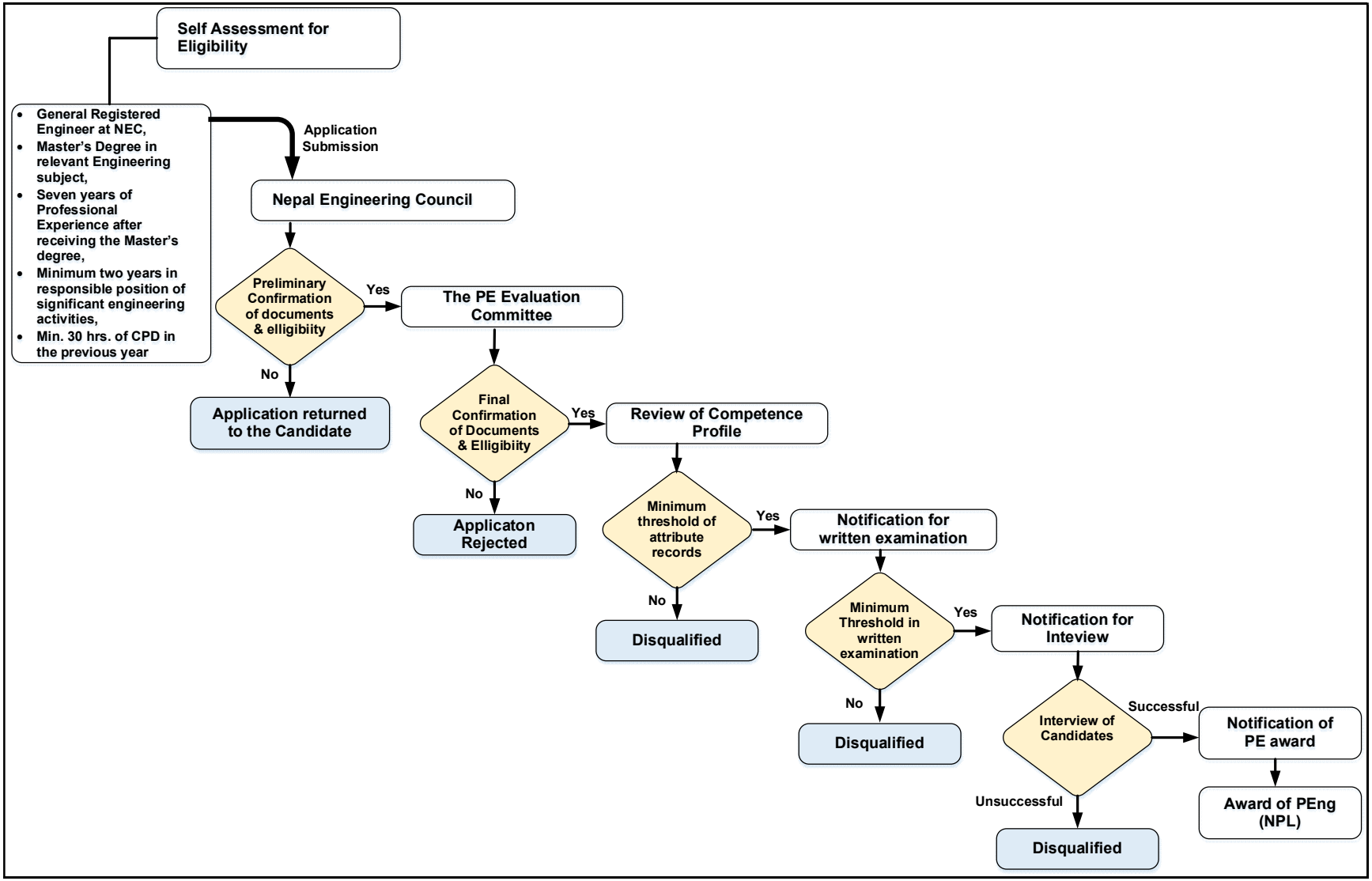

Figure 2: Registration procedure for PE (Standard Route)

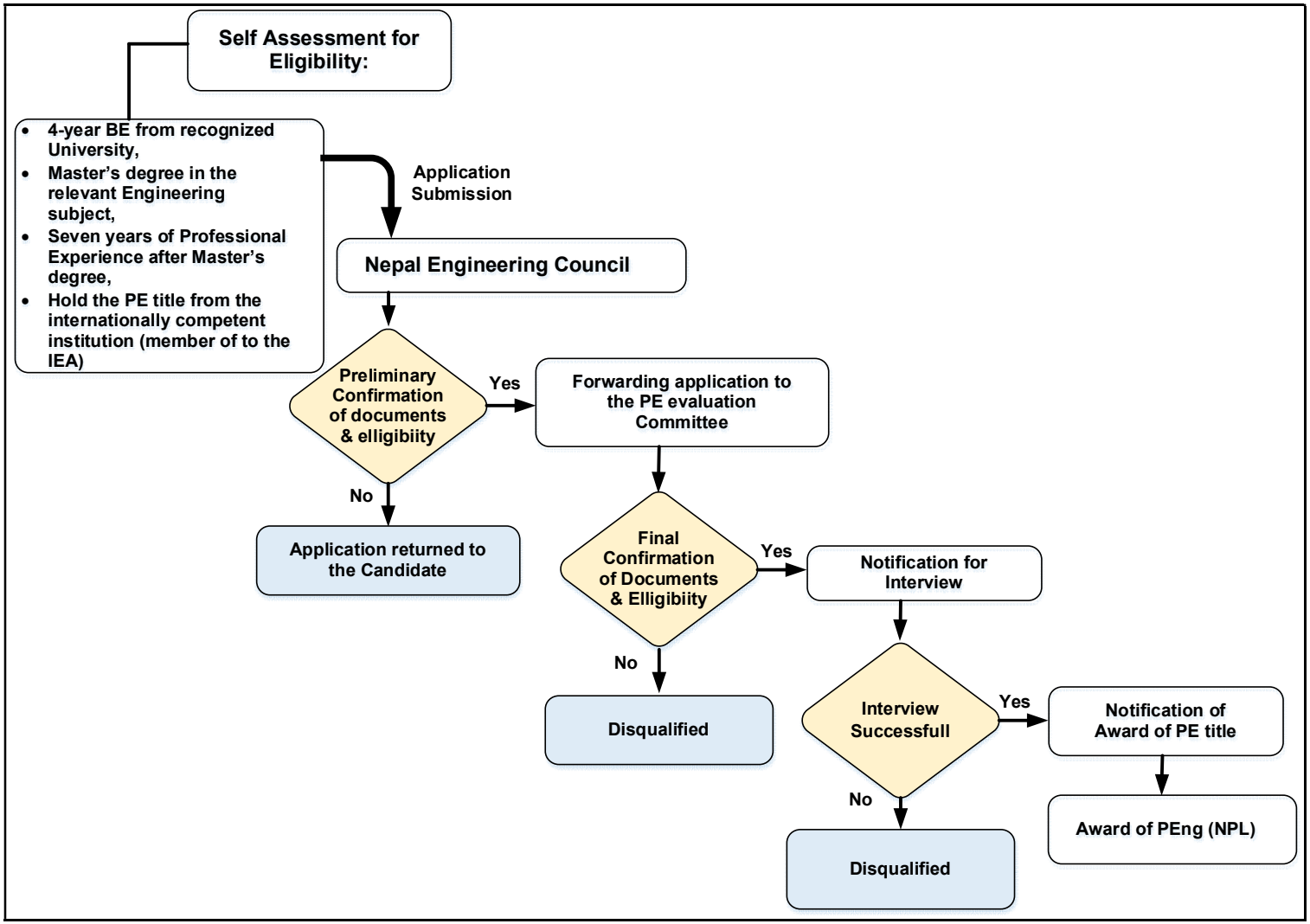

Figure 3: Registration procedure for PE (Registered Route)

4. APPLICATION FILE

The registration procedure is started with the submission of the application and other relevant supporting documents. The details of the application form and the other documents shall be properly compiled to form a complete file. The application file contains the following document sets as below.

4.1 APPLICATION FORM

The application form is given in the **Appendix I**. The PE registration procedure is started with the submission of the paper-based application.The application form has seven sections:

- Section A: Applicant Details: Basic information regarding the applicant, e.g. name, contact details, etc.
- Section B: Application Route: Indicate under which route the applicant is applying, i.e. Standard Route, or registered route,
- Section C: Background and Expertise: Indicate under which discipline academic experience was gained and in which field of expertise professional experience was gained
- Section D: information on the 'Registered Engineer' at NEC or other foreign competent institutions (for Registered Route application).
- Section E: Documents Submitted with Application: Provide details of documents submitted with application form
- Section F: Declaration: Applicant must declare that all information and statements included in the application form, and in the accompanying documents, are true
- Section G: Supporters' name and address: Two engineers who hold the PE title or who hold professional membership from the IPEA member engineering bodies must support application. The supporters are expected to review the applicant's application prior to submission and to provide support as required to make sure that the application effectively represents. Support letter shall mention the strength of the candidate to get the PE title.

4.2 SUPPORTING DOCUMENTS

4.2.1 Personal information

Applicant shall make a set of personal identification documents such as Citizenship Certificate, employer's identity card and other documents for certifying their various activities related to the engineering professional competence.

4.2.2 Certificate of General Registration

The applications for the both routes shall contain the copy of the general registration as an engineer. Applicants for the PE title (registered route) shall submit the notarized copy of the PE certificate (issues by the IPEA associated competent institution).

In the case of the application for the Registered Route, without the General Registration of NEC, the candidate shall attend the written examination with the Standard Route applicants. The validity of the registration for both cases is five years.

4.2.3 Supporter's Confidential Report

Two supporters shall separately submit the confidential reports to the NEC Office. Applicant shall confirm the submission of the Supporters' Confidential Report.

The confidential report shall be filled with carefully considering the competence profile prepared by the candidate. Furthermore, the supporter shall assess the candidate on the following aspects as mentioned in confidential report template.

- Character: This refers to the moral and ethical qualities of the applicant. It may include traits like honesty, integrity, and trustworthiness.
- Professional Behavior and Conduct: This involves how the applicant behaves and conducts themselves in a professional setting. It could encompass aspects like professionalism, courtesy, and respectfulness towards colleagues and clients.
- Leadership Qualities: This pertains to the applicant's ability to lead and inspire others. It may include attributes such as decisiveness, strategic thinking, and the ability to motivate and empower team members.
- Effective Communication: This focuses on the applicant's communication skills. It encompasses both verbal and written communication and includes factors like clarity, coherence, and the ability to convey ideas effectively.
- Awareness and Responsibility Regarding Safety, Health, and Compliance of Code of Ethics: This is about the applicant's understanding of and adherence to safety protocols, health standards, and ethical guidelines relevant to their field or profession. It reflects their commitment to maintaining a safe and ethical work environment.

These criteria provide a comprehensive framework for evaluating an applicant's suitability as Professional Engineer, ensuring that not only their technical skills but also their character and conduct align with the desired standards.

4.2.4 Competence Framework

Applicant shall carefully describe the achievement rage of indicators as mentioned in the

competence framework (given in the **Appendix-IV**). These indicators are comprised of the set of desired professional qualities (knowledge and skill and other activities related to the contribution to the profession). These have been briefly described in terms of the tasks performed or activities conducted/participated by the applicant throughout their professional experience. Applicants must demonstrate in their competence as per the respective indicators.

4.2.5 Career Report

Applicant shall prepare a Career Report (CR) as the supporting documents for the achievement range of competence indicators. The template for the CR is given in the **Appendix III**. It shall demonstrate the competence acquired with the accomplished responsibilities while working in the specific project. Similarly, the role of the applicant and project details shall also be mentioned in the CR.

It shall clearly show the eligibility of professional experience of seven years. Furthermore, the CR shall have clear indication of the significant project responsibility for the duration of two years as another eligibility for the PE registration. The template of CR is developed to complete into two parts as below:

- The first part of the CR shall contain the general experience in the chronological order with the duration of involvement in the project or responsibility. It is recommended to mention the work experience with increasing levels of responsibility. Too much detail should be avoided, except to highlight the application of theoretical knowledge in solving problems encountered. The work experience less than two months are not desired to mention in the professional experience records.
- The second part of the CR shall contain the project description to demonstrate the significance of the role to lead to the specific unit or branch of the project. It shall be indicated with the attainment of the professional competence during the engagement in the project.

The CR is also meant to give the applicant a means of proving that he is aware of the core competencies expected for a Professional Engineer and that he has been guided by the competence standards necessary for the effective discharge of his duties. CR shall demonstrate the following attributes of the competence:

- Engineering knowledge and understanding,
- Design and development skills,
- Responsibilities, management and leadership skills,

- Evaluation of outcomes of the engineering projects or systems,
- Communication and Interpersonal skills,
- Professional conduct

The candidate shall mention the level of acquired rating scale against each competence standards. The main objective of the CR is to convince the evaluation committee that an applicant possesses the required competence consistently in the work. Therefore, it shall not simply be a description of work carried out by the applicant, but must describe "why and how" the activities are related to the acquired competence. The CR should be written in the given template **(Appendix III)**. The candidate shall mention the name and contact of a mentor as the reference person related to the specific project.

4.2.6 Continuing Professional Development Record

Applicants must have completed a minimum of weighted **30 hours** of Continuing Professional Development (CPD) in the previous year (12 months period, before the publication of notice for the PE registration). It is one of the eligible criteria for the application submission. Applications must be accompanied with a CPD record, the format for which are given in the **Appendix V.** These formats are filled with the CPD activities and the hours completed.

5. OUTLINES FOR WRITTEN EXAMINATION

As the applicant is successful in the evaluation of the competence framework based on the Career Report and well as the supporters' recommendations, candidate is invited for the written examination. The examination will be in the format of essay writing as specified by the evaluation committee. The topics and questions patterns (areas of the subjective questions) in examination will be communicated to the applicants for considering the time for the self-preparation.

The Evaluation/Review Committee shall prepare the questions based on the demonstrated competence of the candidate. These written essays shall prove the capability of developing the engineering solutions to the specific issues related to the competencies of the applicant. The written examination include:

- Issues of the engineering professional conduct, ethics project management and state-of-art technological aspects,
- Topics related to the global engineering issues of the sustainability, climate change as well as the resilient approaches in the design.

In the examination candidate shall demonstrate his/her capacity to articulate their professional opinion on important topics relevant to the professional practice of engineering, as well as to their communication skills. It is important that the written examination (essays) is based on the

applicant's own opinions, arguments, conclusions and analysis, and do not include large amounts of quoted text or arguments from other sources. It is not necessary for the assessor to agree with the applicant's stance on a particular topic, they must simply see that the stance has been argued in a logical manner. Written examination is divided into two parts as Code and Rules of ethics and engineering issues in the global, regional or national context related to the technological development and state-of-art tools for the implementation of engineering projects.

5.1 PART 1: CODE CONDUCT, RULES OF ETHICS

This part of the examination is common for all applicants. The content of the examination for this part may include the following issues.

- Complying with relevant professional codes of conduct, Engineering Ethics and involvement professional bodies, and loyalty to employer/superior and social responsibility.
- Applying and managing safe system of work and ethical responsibility for engineering design, construction, erection, installation, execution, supervision and quality assurance & quality control.
- Undertaking engineering activities that contribute to sustainable development and responsibility for environmental, health, safety and welfare issues considering diverse impacts on technical, environment, social, cultural, economic, financial and global responsibility.
- Exercise responsibilities in ethical manner and commitment to public interest in all aspects of professional work demonstrating examples where applicant has applied ethical codes & rules of professional conduct during his/her professional activities.

This part of the examination may include the case-study and analyzing the problem and proposing the specific solutions to the ethical and moral issues during the professional career.

5.2 PART 2: TECHNICAL SKILL

This part of the examination consists of the specific skill of the applicant. It will be the demonstration of the applicant's ability to develop the problem specific solutions within the engineering field by considering the prevailing legal frame-work and state-of-art technological aspects. Similarly, it is also necessary to communicate technically on the related competence. The interpersonal skill are described as following:

- Demonstrating effective personal communication in English and demonstrating ability to contribute and organize professional seminars/workshops, presenting and discussion of proposals and communication to stakeholders.

- Ability to provide best solution, leading teams, training, mentoring and developing staff to meet changing technical and managerial issues.
- Enhancing productive working relationships and resolving conflicts between team members and aware of the needs and concerns of others including negotiation with stakeholders.
- Exchanging information effectively with stakeholders and ability to prepare progress reports for decision making and documentation, as-built drawings for operators, users/clients & stakeholders.

The written examination in this section will mainly be focused on the assessment of candidate's skill on the proficiency which have been claimed for the title of the PE. This may a problem-oriented engineering issue related to the design, data analysis, proposal development, technical notes and other writing patterns.

6. INTERVIEW METHOD

The candidate who passed the written examination, will be called for the interview. An interview is the final evaluation stage of the applicant. The panel of the interview shall be comprised of members of the evaluation Committee and one expert (International) with the PE title from the competent institution affiliated to the IPEA. The applicant will be notified in advance of the date and location of the interview.

7. COMPETENCE STANDARDS

Competencies can be defined as "clusters of related knowledge, skills, abilities and other requirements necessary for successful job performance. It includes individual skills, knowledge and understanding, personal behaviour and the approach, necessary to work collaboratively with others. Competence includes the ability to make professional judgments and an awareness of the limits of one's own abilities and knowledge to seek assistance when required.

Nepal Engineering Council (NEC) has adopted a set of the competence attributes (standards) from which applicants must have achieved these attributes prior to applying for the PEng (NPL) title. Professional Engineers shall demonstrate their competence in the seven areas as mentioned in the **Appendix IV.**

7.1.1 KNOWLEDGE AND UNDERSTANDING OF ENGINEERING

PE shall use a combination of general and specific engineering knowledge and understanding to optimize the application of advanced and complex system. This standard is described in terms of two indicators as:

- Maintaining and extending a sound theoretical approach in developing a specific professional role in the organization,
- Developing technological solutions to unusual or challenging problems, using their knowledge and understanding,

7.1.2 Design, Development and Problem Solving

This competence is about the ability to apply engineering knowledge effectively and efficiently to the individual tasks which need to be undertaken in the applicant's role. Indicators of this standard mainly include the following abilities:

- Taking an active role in the identification and definition of project requirements, problems and opportunities,
- Conducting appropriate research to undertake the design, development and analysis required to complete an engineering task and conduct these activities effectively,
- Implementing engineering design solutions and evaluation of their effectiveness.

7.1.3 Responsibility, Management and Leadership.

PE shall demonstrate technical and commercial leadership. This competence is about the ability to plan the applicant's own work and manage or specify the work of others effectively, efficiently, and in a way which provides leadership at an appropriate level, whether technical or commercial. This competence is indicated by the description of the following indicators as:

- Planning the work and resources needed to enable effective implementation of a significant engineering task or project,
- Managing (organize, direct and control), program or schedule, budget and resource elements of a significant engineering task or project,
- Leading the teams or technical specialists and assist others to meet changing technical and managerial needs.
- Result oriented: Bring about continuous quality improvement and promote best practice for achieving project goals.

7.1.4 Evaluation of Outcomes of The Engineering Projects

This competence is related to the project assessment of outcomes of engineering projects against intended objectives. This ability is described by the following indicators as:

- Evaluation of project outcomes,
- Commercial ability of the candidate,

- Ensuring that safety, sustainability, and efficiency are prioritized.

7.1.5 COMMUNICATION AND INTERPERSONAL SKILLS.

PE shall demonstrate effective communication and interpersonal skills. This is an ability to work with others constructively, to explain ideas and proposals clearly and to discuss issues objectively. It can be assessed by the following indicators as:

- Communicating effectively with others, at all levels, in English or in the language of comfort,
- Presenting effectively, conduct discussions on the proposals, justifications and conclusions,
- Demonstrating personal and social skills and awareness of diversity and inclusion issues,
- Judgement and decision making.

7.1.6 PROFESSIONAL CONDUCT

It is referred as the personal commitment to the professional code of ethics and professional standards, recognizing obligations to the society, the profession and the environment. This competence is about ensuring that the applicant is acting in a professional manner in their work and in their dealings with others. A PE should set a standard and example to others with regard to professionalism. These categories of the competence are assessed by the indicators as:

- Understand and comply with relevant codes of conduct,
- Understanding the safety implications of their role and manage, apply and improve safe systems of work,
- Understanding the principles of sustainable development and apply them in their work,
- Understand the ethical issues that may arise in their role and carry out their responsibilities in an ethical manner,
- Responsibility for decision.

7.1.7 LIFELONG LEARNING

This competence standard is intended for maintaining the continuous professional development. It is to engaging in continuous professional development to stay current with advancements in engineering. PE shall prepare for and depth of continuing learning. PE should assess to acquire and apply the competencies and resources appropriate to engineering activities. Lifelong learning competence can be assessed by the following indicators as:

- Carry out and record the Continuing Professional Development (CPD) necessary to maintain and enhance competence in their own area of practice,

- Specialization of your field of engineering and knowledge transfer to the new generation,
- Mentoring and support to the junior engineers.

7.2 Competence Rating Scale

Each category of competence standard is assessed in terms of rating score based on demonstrated level of achievement in the respective indicator. The definition and category of the competence as mentioned in the competence framework are specifically evaluated against the written statements by the candidate. Fulfillment of each activity within the competency category is measured objectively by using rating scale, which rates the applicant's competence on a scale from 1 to 5. The competence rating scale guides the evaluators for scoring against each indicator of the achievement records. The description of the competence rating scale to guide the evaluators is provided in the **APPENDIX-VI.**

7.3 Documenting Competence Achieved

The standard format for documenting the range of activities for achieving particular competence indicator has been provided in the format of Career Report (CR). The template for the CR has been previously explained and provided in **Appendix III**.

8. CONTINUOUS PROFESSIONAL DEVELOPMENT

11.1 Introduction

Continuing Professional Development (CPD) is defined as the systematic maintenance, improvement, and broadening of knowledge and skills, and the development of personal qualities, necessary for the execution of professional and technical duties throughout an engineers working life.

CPD covers all aspects of professional life, and relate to both technical and non-technical skills. The aim of CPD is to provide framework for overall professional development and career progression. Therefore, CPD is not simply as attendance at particular training courses, but instead as planned and structured, long-term training approach for professional development.

Engineers must be constantly learning and adapting as their relevant engineering discipline advances. This is also particularly important for skill sets which are not necessarily engineering specific but which are critically important for a Professional Engineer, for example communications skills, report writing, etc. CPD is the systematic way in which life-long learning is approached throughout an engineer's career. Demonstrating a commitment to learning, and participation in CPD activities is an important part of the application for the title of Professional Engineer.

11.2 PROFESSIONAL ENGINEERING SERVICES

An engineer is capable to carryout various activities related to the engineering and technological sectors. Professional engineering services are specifically defined subset of engineering services that and are characterized by the application of mathematics and scientific principles, judgement, knowledge and skill required to provide those services. Furthermore, the scope of the service shall be harmonized with the professional competence as mentioned by the International Engineering Alliance.

*A **professional engineering service*** includes the design, development and analysis of systems, applications and equipment relating to construction, production, operation or maintenance. A person who performs a professional engineering service for a client or an employer is responsible for applying engineering principles, data and specialist knowledge of mathematical and natural sciences to their work, consistent with the attributes and competency framework as referenced in the International Professional Engineers Agreement.

Professional engineering services include any service that requires engineering judgement, knowledge and skill to provide professional and fit-for-purpose engineering services. These services may include but are not limited to:

- providing consultation, evaluation, engineering studies, design of engineering works and systems, design drawings, specifications, modelling, simulations, reviews and advice and other technical submissions,
- reviewing for the purposes of informing engineering decisions for the use or modification of design or construction products such as drawings and specifications related to engineered works, and
- Assessing proposed modifications that may impact the basis of design.

11.3 AREAS OF THE PROFESSIONAL DEVELOPMENT

The Nepal Engineering Council defines Continuous Professional Development (CPD), under the working procedures which govern the registration of engineers under the PEng (NPL) title, as any of the following activities:

- Performance in the engineer's certified field (areas of his/her qualifications) and its continuation,
- Conduct or participate in seminars on subject matter directly related with the engineer's certified field,
- Research and development, and publication, of technical articles related to the engineer's

certified field,

- Contributing to develop knowledge on underlying requirements concerning qualifications and expertise of professional engineers as stipulated in international agreements and treaties including the provisions of the World Trade Organization (WTO) and the International Engineering Alliance (IEA).
- Additionally, PE may possess knowledge on:
    - project management techniques,
    - financial analysis of projects,
    - laws, bylaws, guidelines, codes, and specifications related to the engineering profession and its performance,
    - The competence standards and respective indicators.

CPD activities outside of those listed above may also be considered and as above do not necessarily need to betechnical or engineering orientated, and can cover any learning that develops the professional capacity of an engineer, for example learning a language, IT skills, training on socio-economic issues to improve understanding of social needs, etc.

Engineering profession is diverse and related to the very wide range of disciplines such as management, administrations and social welfare. Some examples of the areas CPD are listed below:

11.3.1 Self-Development

Self-development shall be taken as the main origin for the continuous professional development. A person with the interpersonal skill is good for the society and for profession. There are some areas to consider in this aspect of the continuous professional development.

- Interpersonal Skills: these skills are related to the personal quality to be good in the society such as: communication skills to enhance both verbal and non-verbal communication, practice active listening, and develop empathy; conflict resolution learning to the techniques for resolving conflicts, negotiating effectively, and mediating disputes; building relationships to cultivate trust, respect, and cooperation within personal and professional relationships.
- Leadership and team management: these may include the skills to motivate and lead the professional community and society by inspiring its members, setting clear goals an, and providing guidance and support. Furthermore, delegation of assign tasks based on team members' strengths and skills, for empowering them to take ownership of their responsibilities. Similarly, a professional engineer shall be able for team building to foster a

collaborative and inclusive team environment, encourage open communication, and resolve conflicts within the team.

- Decision Making: the decision making is an important quality for a professional which derives after the analytical thinking based on the relevant information, and evaluating alternative options before making any decisions. Decision making shall be guided by the problem solution by developing creative solutions, weigh the pros and cons of different approaches, and make informed decisions.
- Stress management: it could be a major part of the personal development for an engineer. The mindfulness and relaxation, meditation, and relaxation exercises taken as the ways to reduce stresses. Healthy lifestyle shall be maintained to manage stress effectively. Similarly, time management, prioritizing the tasks, setting realistic goals, are major steps for reducing the stress.
- Career development and planning: setting the goals and continuous learning are important steps for the personal development. These can be achieved by pursuing further education, attending workshops and seminars, and seek opportunities for professional growth. Similarly, building professional networking can be taken one of the success factor for career development.
- Foreign languages: learning foreign language could be taken as the medium for understanding cultural and technological aspects of the respective countries. It would be useful for traveling and working with international colleagues in the professional field.
- Professional ethics and rules of conduct: a professional shall understand and adhere the ethical standards and principles in relevant to the profession. He/she shall keep in mind the professional integrity by maintain honesty, transparency, and accountability in the all-professional interactions. Furthermore, he/she shall follow industry-specific codes of conduct, and continuously strive to improve your ethical behavior and professional reputation.

11.3.2 Communication Skill

Communication skill is an important tool for a successful professional engineer. The communication in the form of writing skill the reports, writing the letters, interview skills, negotiating skills, managing the meeting and many more specific cases. The communicating with the help of general and specific data and analysis with the presentation may also be considered as the formal and methodological interaction among the stakeholders.

11.3.3 Strategic Management

Strategic management is one of the success indicators for a professional. A professional shall take the initiations to plan the future activities for the improvement of the performance in the business. Furthermore, a professional shall develop the plan for the self-capacity enhancement programs.

11.3.4 Technical Skill

Technical skills are very diverse in nature and are always needs to upgrade. Some of the skills and areas are listed as below:

- Detail design
- Environmental design/technology/impact analysis
- New design skills
- Procurement – estimates, bids and tenders
- Construction site management
- Computer Aided Design (CAD) and Building Information Model
- Energy efficiency/energy conservation
- New building materials
- New forms of contract and partnering

11.3.5 Legislative scope

A PE can have update himself in the areas of the legislative domain. There are country specific laws and regulations related to the engineering services and industries. Some of them are as:

- Construction regulations
- Construction contract law
- Health and safety legislation
- Environmental legislation
- Employment legislation
- Different forms of contract

11.3.6 Working with others

A PE could develop his/her own profession by focusing on the skills of team building such as: team leadership, motivation speaker, negotiation skills, and delegation skills, managing poor performance of system or services, performance appraisals and others.

11.3.7 Business practice

A PE could have the better quality in dealing with the clients and marketing for specific engineering services, marketing skills and techniques, public relations; dealing with media and societies related to the profession.

11.3.8 Information Technology

Information Technology (IT) is an emerging each field of engineering. Therefore, PE could develop the services related to the IT. Application of IT in the particular field of engineering is taken as an emerging professional engagement. It broadens the scope of the engineering service especially for the new generation.

11.3.9 Contract management

PE could develop their career related to the financial planning and management - reporting systems, establishing a budget, cost control systems, cash flow, and profit and loss account, balance sheets, VAT and taxation, project finance, and government grants.

PE could also follow the career path to be engaged in the project management by acquiring the knowledge in the procurement procedures, contract management, terms of appointment and contract administration, risk management, disputes resolution and others. The emerging issues of the project management are very attractive job-areas of the engineers.

11.3.10 Specialist interest areas

An Engineer could identify the specialized career opportunity in the areas of recent trends such as energy efficiency, environment and conservation, public sector management, research and other areas for innovation. Conducting trainings and other capacity building activities for the specialized field of engineering is also an emerging field of the professional engineer.

11.3.11 Health, Safety and Welfare

Engineering sector is very much related to the health, safety and public welfare. These areas may include the specialization in the legislation, evaluation of role of Health and Safety Executive (HSE), personal responsibility for health, safety and welfare, collaborative approach for building safe infrastructure. Engineers shall develop the skill to work in the collaboration with the other public sectors and concerns for the issues on the sustainability, economics and societal development.

11.4 CPD RECORDS

Applicants for the PE shall maintain 30 CPD hours (in the previous year) besides the main engagement in the engineering services. The minimum requirement for the engineering services is described in the consecutive sub-heading of this guidelines. The minimum of 30 CPD hours per

year is the man requirement for eligibility and renewal criteria of the PE.

CPD continues to be important in the process of the award of the title of Professional Engineer. Professional Engineers are required to complete a minimum of 30 hours of CPD per year. The format and the weight factors for the CPD record is included in the **Appendix V**. The CPD hours are calculated on the basis of CPD weight factor and engagement duration (hours) in the respective activities. There are five types of CPD activities as below.

- Formal Education in engineering
- Continuing Education and Trainings,
- Authoring Books
- Mentoring sub-ordinates/junior engineers
- Writing technical Papers/Reports,
- Contribution to the Professional societies