नेपाल इन्जिनियरिङ्ग परिषद्

NEPAL ENGINEERING COUNCIL

GUIDELINES

FOR

CAPACITY BUILDING PROGRAM DEVELOPMENT AND RECOGNITION

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1. INTRODUCTION

Engineering education and professional development play a critical role in ensuring infrastructure services to public, national development, and sustainable technological advancement. In Nepal, engineers need to continuously update their knowledge, skills, and professional competencies to be able to address the issues of rapid growth in infrastructure demands, evolving regulatory frameworks, and high levels of societal expectations for quality infrastructure services.

The Nepal Engineering Council (NEC), as the statutory body responsible for regulating engineering practice and maintaining professional standards, is mandated to conduct and facilitate capacity building programs for engineering professionals. In line with this mandate, NEC has initiated various capacity building programs, with a specific focus on implementing bylaws for the management of such programs. It is expected that implementing the bylaws by the NEC and by relevant institutions will enhance professional capacity across the engineering sector.

Capacity building programs are recognized as a key component of Continuing Professional Development (CPD), enabling engineers to remain up-to-date, competent, and competitive in an increasingly globalized professional environment. CPD complements formal education by strengthening practical skills, professional judgment, ethical practice, and innovation capacity.

The absence of a unified guideline for developing curricula for the capacity building programs has resulted in variations in quality, relevance, learning depth, and alignment with professional competency requirements. In many cases, programs are designed without a clear distinction of target career stage, expected learning outcomes, or linkage to national priorities and professional standards.

To address these gaps, NEC has prepared under the provisions of **"Engineering Professionals Capacity Building Bylaws, 2082"** this guideline to provide a standardized yet flexible framework for developing curricula for engineering training, workshops, conferences, symposiums, and research and development programs. The guideline is applicable across all recognized engineering streams and is intended to promote consistency, relevance, and quality in professional learning initiatives implemented by NEC and affiliated institutions.

2. SCOPE

This guideline applies to all institutions involved in the development of capacity building programs in recognized engineering streams. The guideline is meant to be used as a common framework for developing program structures seeking recognition or recognition from the Nepal Engineering Council. It covers a wide range of capacity building activities (e.g. training, workshops, seminars, conferences, symposiums, and research and development) conducted by NEC and other institutions for CPD.

This guideline adopts a career-stage-based approach, recognizing that learning needs evolve from early career, mid-career, and senior career stages. By aligning program objectives, content, delivery methods, and expected outcomes with defined competency expectations at each stage, the guideline supports progressive professional

development and lifelong learning. The guideline aims to ensure consistency, relevance, quality, and alignment with professional competency requirements, ethical standards, and national development priorities. The guideline emphasizes outcome-based curriculum design and integration of practical and research-oriented learning.

3. OBJECTIVES

This guideline is intended to support a systematic, transparent, and stage-appropriate approach to designing capacity building programs in the engineering sector. It aims to assist institutions and program developers in aligning their training, workshops, conferences, symposiums, and research and development activities with the professional standards, regulatory requirements, and national priorities set by the Nepal Engineering Council

The specific objectives of this guideline are outlined below to provide clear directions for curriculum development, recognition, and implementation of capacity building programs:

a. Provide a standardized framework for developing curricula for engineering capacity building programs that are eligible for recognition by the Nepal Engineering Council.
b. Ensure that programs are designed in alignment with defined career stages, namely early-career, mid-career, and senior-career levels, reflecting the evolving competencies of engineering professionals.
c. Promote outcome-based curriculum design with clearly defined learning objectives, expected competencies, and measurable outcomes for each program.
d. Support the integration of technical knowledge, professional practice, ethics, safety, sustainability, and innovation within capacity building programs.
e. Enhance the relevance and practical applicability of programs by encouraging the use of real-world case studies, hands-on activities, field exposure, and applied research components.
f. Facilitate the effective implementation of CPD requirements by providing a structured basis for program recognition and credit allocation.
g. Encourage consistency and quality assurance in program design and delivery across institutions, while allowing flexibility to address discipline-specific needs and emerging engineering challenges.
h. Strengthen the capacity of institutions to design, manage, and evaluate professional development programs in accordance with NEC bylaws, standards, and ethical principles.
i. Promote lifelong learning and continuous professional growth among engineers, enabling them to remain competent, responsible, and competitive at national and international levels.
j. Support NEC's regulatory and oversight role by establishing clear criteria for program review, monitoring, and continuous improvement.

4. DEFINITIONS

For this guideline, the following terms shall have the meanings assigned to them below. These definitions are intended to ensure clarity, consistency, and common understanding in the development, recognition, and implementation of capacity building programs under the Nepal Engineering Council.

1. **Capacity building program**: A structured learning activity designed to enhance the knowledge, skills, professional competence, and ethical practice of engineering students and professionals. This includes training, workshops, seminars, conferences, symposiums, research and development activities, and other recognized CPD activities.
2. **Training:** A planned and structured program focused on developing or improving specific technical, professional, or regulatory skills through guided instruction and practical application. Training programs are typically outcome-oriented and may include assessments, hands-on exercises, or field-based learning.
3. **Workshop:** An interactive, short-duration learning activity that emphasizes active participation, practical problem solving, skill demonstration, and group discussion on a focused technical or professional topic.
4. **Seminar:** A structured academic or professional session aimed at knowledge sharing, discussion, and critical understanding of specific themes, emerging issues, standards, or practices within the engineering sector, generally led by subject experts.
5. **Conference:** A formal gathering of professionals, academics, and practitioners organized to present, exchange, and discuss research findings, professional experiences, technological developments, and policy-related issues in engineering at national or international levels.
6. **Symposium:** A focused academic or professional event centered on in-depth discussion of a specific theme or discipline within engineering, typically involving expert presentations, panel discussions, and scholarly exchange.
7. **Research and Development (R&D)**: Systematic and creative activities undertaken to generate new knowledge, improve existing technologies, develop innovative solutions, or enhance engineering practices, including applied research, pilot projects, and technology development initiatives.
8. **Continuing Professional Development (CPD)**: A structured process of lifelong learning that enables engineers to maintain, update, and enhance their professional competence, knowledge, and skills throughout their careers in accordance with NEC requirements.
9. **CPD activity**: Any recognized learning or professional engagement that contributes to an engineer's CPD requirements, including formal training, workshops, conferences, research, publications, technical presentations, contribution to professional societies and other approved professional activities.
10. **Recognition**: The formal approval granted by the Nepal Engineering Council to a capacity building program, confirming that it meets established standards, guidelines, and CPD requirements.
11. **Early career level**: Registered engineers with limited professional experience who are engaged in developing practical skills, applying standards, and gaining exposure to professional responsibilities.
12. **Mid-career level**: Engineers with significant professional experience who are involved in advanced technical practice, project management, interdisciplinary coordination, or specialized roles.
13. **Senior career level**: Highly experienced engineers engaged in leadership, policy development, strategic decision-making, mentorship, advanced research, or contribution to professional standards and governance.

14. **Program provider**: Any institution, organization, or body authorized or seeking authorization to design and deliver capacity building programs in accordance with NEC guidelines.
15. **Learning outcome**: A clear statement of what participants are expected to know, understand, or be able to do upon successful completion of a capacity building program.

5. ROLE OF THE NEPAL ENGINEERING COUNCIL

The Nepal Engineering Council plays a central regulatory and facilitative role in ensuring the quality, relevance, and effectiveness of capacity building programs in the engineering sector. In the context of this guideline, the role of NEC includes the following:

- **Policy and regulatory oversight**: NEC shall formulate, approve, and periodically update policies, guidelines, and bylaws related to capacity building programs and CPD in accordance with its statutory mandate.
- **Standard setting and guideline development**: NEC shall establish standards and frameworks for curriculum development of training, workshops, conferences, symposiums, and research and development programs to ensure consistency and alignment with professional competency requirements.
- **Program recognition**: NEC shall evaluate, accredit, or recognize capacity building programs developed by NEC and other institutions based on compliance with approved guidelines, standards, and CPD requirements.
- **Career stage alignment**: NEC shall define and maintain career stage classifications and ensure that accredited programs are appropriately designed to meet the learning needs and competency levels of targeted participants.
- **Quality assurance and monitoring**: NEC shall monitor the implementation of accredited programs, review program outcomes, and take necessary measures to maintain quality and continuous improvement.
- **CPD framework implementation**: NEC shall administer and regulate the CPD system, including determination of CPD activities, credit allocation, documentation, and compliance for professional registration and renewal.
- **Program implementation**: NEC may directly organize and conduct capacity building and CPD programs or support other entities in priority areas based on national needs, emerging technologies, and professional gaps within the engineering sector.
- **Coordination and collaboration**: NEC shall coordinate with academic institutions, professional organizations, industry, government agencies, and international bodies to promote effective capacity building and knowledge exchange.
- **Ethical and professional compliance**: NEC shall ensure that all recognized programs adhere to the NEC Code of Ethics, professional conduct standards, and principles of public safety, inclusiveness, and transparency.

- **Information management and reporting**: NEC shall maintain records of accredited programs, participating institutions, and CPD activities, and may publish relevant information for public and professional reference.
- **Review and continuous improvement**: NEC shall periodically review the effectiveness of this guideline and related capacity building mechanisms and revise them as necessary to respond to evolving professional and national requirements.

6. GUIDING PRINCIPLES

The development and delivery of capacity building programs under the Nepal Engineering Council must adhere to the following guiding principles. These principles ensure that programs are relevant, effective, and aligned with professional ethics and code of conduct.

6.1 Outcome Based Learning

- Programs shall be designed with clearly defined learning outcomes that specify what participants are expected to know, understand, or be able to do upon completion.
- Learning outcomes shall be measurable, achievable, and directly linked to the competencies required for professional practice.
- This approach ensures accountability, transparency, and effective assessment of learning.

6.2 Stage Appropriate Competency Development

- Program content, delivery methods, and learning objectives shall be tailored to the career stage of early career, mid-career, or senior career.
- Each stage shall focus on developing competencies appropriate to participants' professional maturity and responsibilities.
- Progressive learning pathways shall be encouraged to facilitate continuous skill and knowledge advancement across stages.

6.3 Professional Practice and Ethics

- Programs shall integrate theoretical knowledge, practical skills, and ethical considerations in a balanced manner.
- Practical and hands-on activities shall complement theoretical sessions to enhance real-world applicability.
- Ethical practices, professional responsibilities, and safety shall be incorporated into all aspects of program design and delivery.

6.4 Aligning with Emerging Technology and Sustainability

- Program content shall comply with engineering standards, codes, and regulatory requirements.

- Programs shall incorporate emerging technologies, innovative practices, and research trends relevant to the engineering sector.
- Industrial needs and societal benefits, sustainability, and national development priorities shall guide curriculum design to ensure that programs contribute to broader public and professional interests.

6.5 Considering Life-long Learning

- Programs shall be designed to contribute to participants' CPD requirements in a structured and meaningful way.
- CPD-oriented programs shall promote lifelong learning, professional competence, and the ability to remain up-to-date and competitive in the engineering profession.
- Recognition, monitoring, and reporting mechanisms shall be aligned with CPD credit systems to ensure recognition of learning activities.

7. PROGRAM RECOGNITION PROCESS

The NEC shall follow a structured and transparent process for the recognition of capacity building programs to ensure quality, relevance, and alignment with approved guidelines and CPD requirements. Recognition process shall include the following steps:

a. **Application submission:** Institutions seeking recognition of capacity building programs shall submit a formal application to NEC in the prescribed format. The application shall include the proposed program structure, curriculum details, target career stage, learning objectives and outcomes, delivery methods, duration, name of resource persons, and assessment and feedback or participation criteria.

b. **Preliminary review:** NEC shall conduct a preliminary review of the application to verify completeness, eligibility, and compliance with basic requirements as specified in relevant bylaws and this guideline.

c. **Technical evaluation:** A technical evaluation shall be carried out by a designated committee or subject experts nominated by NEC. The evaluation shall assess alignment with curriculum guidelines, relevance to the targeted career stage, clarity of learning outcomes, adequacy of content, delivery methodology, and consistency with CPD objectives.

d. **Quality and standards assessment:** The program shall be reviewed for adherence to professional standards, ethical considerations, safety requirements, and alignment with national development priorities. Where applicable, assessment mechanisms, learning materials, and resource requirements shall also be evaluated.

e. **Decision and approval:** Based on the assessment, NEC shall approve, conditionally approve, or reject the application. Conditional approval may require specific revisions or improvements to be addressed prior to the final recognition. Approved programs shall be formally recognized for a defined period or specific number of deliveries, as determined by NEC.

f. **CPD credit allocation:** For approved programs, NEC shall determine the applicable CPD credits in accordance with the CPD framework, considering program type, duration, learning depth, and assessment method.

8. PROGRAM MINOTORING AND EVALUATION

Capacity-building programs shall be continuously enhanced through a structured recognition process. Any modification, improvement, or upgrading of program content particularly those aligned with the next stage of career progression shall be subjected to re-recognition to ensure relevance, quality, and consistency with established standards. The process of the recognition shall follow the following steps:

a. **Implementation and monitoring:** recognized programs shall be implemented in accordance with the approved structure and other requirements. NEC may monitor program delivery through reports, participant feedback, audits, or observation, as deemed necessary.

b. **Reporting and documentation:** Program providers shall submit post-program reports to NEC, including participant details, attendance records, learning outcomes achieved, and any deviations from the approved curriculum.

c. **Review and renewal:** NEC shall conduct a review of the program-reports submitted by the program providers or institutions. Institutions seeking renewal or continued recognition shall submit updated program information and performance records as required by NEC.

d. **Withdrawal or suspension:** NEC reserves the right to suspend or withdraw the re-recognition of any program. Programs that are found to be relevant and effective for the targeted engineering professionals, and that comply with the approved guidelines, shall be encouraged to undergo the re-recognition process.

9. DEVELOPING CURRICULUM OR PROGRAM STRUCTURE

Before developing a capacity building program or curriculum for recognition by the Nepal Engineering Council, institutions must ensure that the following prerequisites are clearly defined. These steps provide a structured and consistent approach to designing programs that are relevant, effective, and aligned with professional standards and CPD requirements.

a. Needs assessment

- Conduct a detailed assessment to identify knowledge gaps, skill deficiencies, and competency requirements among the target audience.
- Consider national priorities, industry demands, emerging technologies, professional standards, and regulatory requirements.
- Collect feedback from stakeholders including participants, professional organizations, academic institutions, and industry experts.

b. Define target audience

- Clearly specify the profile of participants, including education, professional registration, work experience, and career stage.
- Determine eligibility criteria such as prior knowledge, technical qualifications, or registration status with NEC.
- Define expected participant numbers, diversity, and learning needs.

c. Set career stage / level

- Determine the career stage of the target participants to ensure content, methodology, and outcomes are appropriate.
- NEC defines five career stages: Student, Graduate, Early Career, Mid-Career, and Senior Career.
- The following table provides details of each stage:

Career Stage	Definition	Key Focus Areas for Curriculum
Early Career	Registered engineers with limited professional experience (typically below 5 years) engaged in applying standards, developing practical skills, and gaining exposure to professional responsibilities.	Technical skill development, project execution, documentation, quality control, professional ethics.
Mid-Career	Engineers with significant experience (typically 5 to 15 years) who are involved in advanced technical work, project management, interdisciplinary coordination, or specialized roles.	Advanced technical specialization, leadership, decision-making, applied research, team and project management.
Senior Career	Highly experienced engineers (typically 15+ years) engaged in strategic decision-making, leadership, policy development, mentorship, and contribution to professional standards and governance.	Strategic leadership, policy and standard development, mentorship, advanced R&D, ethical governance.

d. Learning outcomes

- Define clear, measurable, and stage-appropriate learning outcomes.
- Specify what participants should know, understand, or be able to perform after program completion.
- Ensure alignment with competency domains: technical skills, professional practice, ethics, sustainability, innovation, leadership (as applicable).

e. Program Objectives

- Identify specific objectives of the program in relation to professional development, CPD compliance, and professional priorities.
- Objectives should be achievable, coherent, and measurable within the program duration.

f. Content scope and structure

- Outline topics, modules, or themes with a clear progression from basic to advanced levels according to career stage.
- Ensure balance between theory, practical application, case studies, and research-oriented learning.

- Include relevant technical standards, regulatory frameworks, and emerging technologies.

g. Delivery methods
    - Select appropriate instructional methods such as lectures, workshops, hands-on sessions, case studies, group work, panel discussions, simulations, onsite practical sessions.
    - Adapt methods to career stage and program objectives to ensure active learning and engagement.
    - Duration and schedule: determine total program duration, session distribution, and pacing to ensure effective learning.

h. Ensure CPD credit allocation

Each capacity building program shall be given professional weights in terms of credit hours. It shall be allocated by assessing the time duration for the achievement of learning outcomes.

i. Resource management:
    - Identify qualified instructors, subject experts, and facilitators.
    - Ensure the availability of necessary facilities, equipment, and learning materials.

j. Assessment and evaluation
    - Define mechanisms to assess learning and competency acquisition.
    - Include feedback collection, self-assessment, peer evaluation, and practical demonstration as applicable.

k. Ethical and professional compliance: Ensure content and delivery adhere to NEC Code of Ethics, professional conducts, inclusiveness, and transparency.

l. Documentation and reporting framework
    - Prepare templates for attendance, learning outcomes, participants' feedback, and CPD credit reporting.
    - Ensure that records meet NEC recognition and monitoring requirements.

10. PROGRAM IMPLEMENTATION

Effective implementation of capacity building programs requires clear delineation of roles and responsibilities between the Nepal Engineering Council (NEC) and the institutions or organizations that provide trainings, workshops, conferences, symposiums, or research and development activities. Defining these roles ensures that programs are developed, delivered, and monitored in a structured, ethical, and quality-assured manner, while aligning with professional standards, CPD requirements, and professional priorities.

Institutions or organizations providing capacity building programs have the following responsibilities:

a. Program design and development
    - Develop programs in accordance with NEC guidelines, including learning outcomes, content structure, duration, and delivery methods.

- Ensure programs are tailored to the career stage of participants and align with identified professional competency needs.

b. Application for recognition

- Submit complete and accurate applications to NEC for program recognition.
- Provide all supporting documents, including curriculum, faculty qualifications, facilities, and assessment plans.

c. Delivery of programs

- Implement programs as approved, ensuring quality, consistency, and participant engagement.
- Follow stage-appropriate teaching methods, integrating theory, practical exercises, and ethical practice.

d. Resource management

- Provide qualified instructors, subject experts, facilitators, and necessary learning materials.
- Ensure infrastructure, equipment, and technological support meet program requirements.

e. Assessment and feedback

- Conduct participant assessments, practical evaluations, or knowledge checks as applicable.
- Collect and document participant feedback for continuous improvement.
- Documentation and reporting
- Maintain accurate records of participant attendance, learning outcomes, and CPD credits.
- Submit post-program reports to NEC, including evaluation outcomes and compliance with approved curriculum.

f. Ethical compliance

Ensure all program content and delivery adhere to NEC Code of Ethics, professional standards, and inclusivity principles.

g. Continuous improvement

Regularly update programs based on participant feedback, industry trends, emerging technologies, and NEC guidance.

11. MODES OF TRAINING

Capacity building programs may be delivered through different modes depending on the learning objectives, career stage of participants, available resources, and nature of the content. NEC recognizes the following primary modes of training:

a. Classroom-based training

- A traditional mode where knowledge and concepts are delivered through lectures, presentations, discussions, and interactive sessions.
- Suitable for theoretical understanding, introduction to standards and regulations, technical concepts, and professional practices.

- Can be conducted in physical classrooms or virtual environments (online live sessions).

b. Practical / Laboratory-Based Training

- Hands-on training conducted in controlled laboratory or workshop environments.
- Focus on developing technical skills, experimentation, and application of theoretical knowledge.
- Includes exercises such as testing, measurements, simulations, and working with engineering tools or equipment.

c. Field-Based Training

- Training conducted at real-world sites such as construction projects, industrial facilities, or research sites.
- Provides practical exposure to professional work environments, site conditions, project management practices, and safety procedures.
- Encourages observation, problem-solving, and experiential learning in actual operational contexts.

d. Project-Based Training

- Learning through structured projects that require participants to plan, execute, and present solutions for real or simulated engineering problems.
- Integrates multiple competency domains, including technical knowledge, project management, teamwork, and problem-solving.
- Suitable for early, mid, and senior career stages to reinforce practical application, innovation, and independent learning.

e. Online / E-Learning-Based Training

- Programs delivered through digital platforms using pre-recorded lectures, webinars, interactive modules, or virtual simulations.
- Suitable for knowledge dissemination, CPD updates, and participants in remote locations.
- Can be self-paced or instructor led.

f. Blended Learning

- A combination of classroom-based, practical, field-based, and online modes.
- Designed to maximize learning effectiveness by integrating theoretical instruction with hands-on practice and experiential learning.
- Provides flexibility, while ensuring learning outcomes are achieved across multiple competency domains.

g. Workshop Mode

- Intensive, interactive, short-duration sessions focusing on skill development, problem-solving, and collaborative exercises.
- Encourages active participation, group work, case studies, and demonstration of practical skills.

h. Seminar / Symposium / Conference Mode

- Knowledge-sharing platforms emphasizing discussion, presentations, expert lectures, and professional networking.

- Suitable for advanced learners, research dissemination, policy discussion, and exposure to emerging trends.

12. TRAINING PROGRAM DEVELOPMENT

A training program is a structured and outcome-oriented learning activity designed to develop or enhance specific technical, professional, or managerial competencies of engineering professionals. Training programs are typically delivered through classroom-based, laboratory-based, field-based, project-based, or blended modes and are aligned with defined learning outcomes appropriate to the targeted career stage. Training involves systematic instruction, guided practice, and assessment of learning outcomes, and they contribute directly to skill development and professional competence under CPD requirements.

Table 1 Curriculum Structure for Training Program

SN	Section	Description / Details	Guidelines
1	**Program Overview**	Concise description of the program, its purpose, relevance to the engineering profession, and intended contribution to professional capacity development.	Clearly state alignment with NEC mandate and CPD framework.
2	**Program Needs Assessment**	Explanation of the identified professional, technical, or competency gaps that the program aims to address.	Should be based on industry demand, regulatory changes, emerging technology, national priorities, or professional practice needs.
3	**Stage of Career**	Specification of the intended career stage of participants: Early Career, Mid-Career, or Senior Career.	Content depth, delivery method, and assessment must align with the selected career stage.
4	**Target Participants**	Description of the intended audience including academic background, professional experience, registration status, and sector of practice.	Clearly define eligibility and participant profile.
5	**Program Mode**	Mode of delivery such as classroom-based, practical/laboratory-based, field-based, project-based, online, or blended.	Multiple modes may be combined where appropriate.
6	**Program Details**	Duration, total contact hours, session structure, schedule, location (if applicable), and expected CPD credits.	Ensure alignment with NEC CPD credit allocation guidelines.
7	**Learning Outcomes**	Clearly defined and measurable learning outcomes specifying knowledge, skills, and competencies participants will acquire upon completion.	Outcomes must be stage-appropriate and outcome-based.
8	**Prerequisites**	Required prior knowledge, qualifications, skills, or professional experience necessary for effective participation.	Include technical, academic, or regulatory prerequisites where applicable.

SN	Section	Description / Details	Guidelines
9	**Program Content / Topics**	Detailed module-wise or session-wise outline of content to be covered.	Include theory, practical exercises, case studies, ethical considerations, and project components as applicable.
10	**Teaching and Learning Methods**	Instructional approaches such as lectures, hands-on practice, workshops, field visits, group work, project-based learning, or online modules.	Methods should support learning outcomes and career stage.
11	**Facilitators / Resource Persons**	Details of trainers or subject experts including qualifications, professional experience, and roles.	Facilitator expertise should match program scope and level.
12	**Resources and Materials**	Learning materials, reference documents, tools, equipment, software, and other resources required for program delivery.	Clearly indicate resources provided by the institution and those required from participants.
13	**Assessment and Evaluation**	Methods for evaluating participant learning and competency, such as assignments, practical demonstrations, project reports, tests, or participation.	Assessment should verify achievement of learning outcomes.
14	**Certification**	Description of certification or recognition to be awarded upon successful completion, including CPD credit recognition by NEC.	Specify conditions for certification such as attendance, assessment, or participation requirements.
15	**Further Learning Pathways**	Identification of related or advanced programs that participants may pursue for continued professional development.	Supports structured CPD progression across career stages.

13. WORKSHOP DEVELOPMENT

A workshop is a short-duration, interactive, and practice-focused learning activity aimed at developing hands-on skills, applied knowledge, or problem-solving abilities. Workshops emphasize participant engagement through exercises, demonstrations, group work, simulations, and practical tasks rather than extensive theoretical instruction. They are particularly suited for skill enhancement, technology application, and exposure to tools or methods relevant to professional practice and are recognized as CPD activities when participation criteria are met.

Table 2 Curriculum Structure for Workshop

Section	Description / Details	Guidelines
Workshop Overview	Brief description of the workshop, its purpose, relevance to professional practice, and expected skill enhancement.	Emphasize hands-on and interactive nature.
Workshop Need Assessment	Description of specific skill gaps, practice challenges, or emerging professional needs addressed by the workshop.	Based on industry practice, regulatory updates, or technology adoption.

Section	Description / Details	Guidelines
Stage of Career	Targeted career stage: Early Career, Mid-Career, or Senior Career.	Determines depth, complexity, and learning approach.
Target Participants	Intended participant profile, including discipline, experience level, and professional role.	Clearly define eligibility.
Workshop Mode	Delivery mode such as hands-on practical, laboratory-based, field-based, project-based, or blended.	Workshops should prioritize active participation.
Workshop Details	Duration, contact hours, session breakdown, schedule, and venue.	Typically, short-duration and intensive.
Learning Outcomes	Specific, measurable outcomes focused on skills and practical competencies.	Outcomes should be demonstrable.
Prerequisites	Required prior knowledge, skills, or experience to effectively participate.	May include software familiarity or basic technical knowledge.
Workshop Content / Activities	Session-wise outline of activities, exercises, demonstrations, case studies, and group tasks.	Limit theory; focus on application.
Teaching and Learning Methods	Demonstrations, guided practice, group work, simulations, problem-solving exercises.	Encourage peer learning and interaction.
Facilitators / Resource Persons	Qualifications and experience of facilitators with strong practical or industry background.	Practitioner experience preferred.
Resources and Materials	Tools, equipment, software, datasets, manuals, and handouts required.	Specify participant responsibilities.
Assessment and Participation Criteria	Criteria for satisfactory participation such as attendance, task completion, or practical demonstration.	Formal exams usually not required.
Certification	Workshop completion certificate and applicable CPD credits.	Define minimum requirements for certification.
Further Skill Development Pathways	Suggested follow-up trainings or advanced workshops.	Supports CPD continuity.

14. SEMINAR DEVELOPMENT

A seminar is a knowledge-sharing and discussion-oriented program intended to enhance understanding, awareness, and professional insight on specific themes, emerging issues, policies, research findings, or professional practices within the engineering sector. Seminars are generally lecture-based or discussion-based and may include expert presentations, panel discussions, and question-and-answer sessions. They focus on conceptual understanding rather than skill assessment and contribute to CPD through informed participation and professional dialogue.

Table 3 Curriculum Structure for Seminar

Section	Description / Details	Guidelines
Seminar Overview	Description of the seminar theme, objectives, and relevance to the engineering profession.	Emphasize knowledge exchange and discussion.
Seminar Need Assessment	Justification of the seminar based on emerging trends, policy changes, research developments, or professional issues.	Focus on awareness and discourse.
Stage of Career	Applicable career stage(s): Early Career, Mid-Career, or Senior Career.	Seminars may target multiple stages.
Target Participants	Description of intended participants including discipline and professional role.	Broad participation encouraged.
Seminar Mode	Classroom-based, panel discussion, expert lecture, or online/webinar format.	Interactive elements encouraged.
Seminar Details	Duration, number of sessions, schedule, and venue or platform.	Usually, short duration.
Learning Outcomes	Expected knowledge, understanding, or awareness participants will gain.	Outcomes may be informational rather than skill based.
Prerequisites	Any recommended background knowledge or experience.	Often minimal or none.
Seminar Topics / Themes	List of key themes, sessions, or presentation topics.	Should align with seminar objectives.
Teaching and Learning Methods	Expert lectures, presentations, panel discussions, Q&A sessions, and group discussions.	Encourage interaction and exchange of views.
Speakers / Resource Persons	Details of speakers including expertise, affiliation, and role.	Subject-matter expertise essential.
Resources and Materials	Presentation slides, reading materials, policy documents, or research papers.	May be provided before or after sessions.
Participation Criteria	Criteria for recognition such as attendance or active participation.	Assessment usually not required.
Certification	Participation certificate and applicable CPD credits.	Attendance-based certification common.
Further Engagement Opportunities	Suggested conferences, workshops, or research activities for deeper engagement.	Supports professional networking and CPD.

15. CONFERENCE

A conference is a large-scale professional or academic gathering organized at national or international levels to facilitate the dissemination of research, exchange of professional knowledge, policy dialogue, and networking among engineers, researchers, academicians, and industry professionals. Conferences typically include keynote lectures, technical paper presentations, panel discussions, poster sessions, and exhibitions. They support professional development through exposure to current research, innovations, standards, and global best practices and are recognized under CPD frameworks.

Table 4 Curriculum Structure for Conference

Section	Description / Details	Guidelines
Conference Overview	Brief description of the conference theme, objectives, scope, and professional relevance.	Should reflect national or international significance.
Conference Need Assessment	Rationale for organizing the conference, including sectoral challenges, emerging technologies, policy needs, or research priorities.	Linked to industry, academia, and national development needs.
Stage of Career	Applicable career stages: Student, Graduate, Early Career, Mid-Career, Senior Career.	Conferences may target multiple or all stages.
Target Participants	Engineers, researchers, academicians, policymakers, industry professionals, and students.	Clearly state intended audience groups.
Conference Mode	Plenary sessions, technical paper presentations, panel discussions, keynote lectures, poster sessions, and exhibitions.	Hybrid or in-person modes may be specified.
Conference Details	Duration, number of sessions, program schedule, venue/platform, and organizing bodies.	Usually multi-day events.
Learning Outcomes	Expected outcomes such as enhanced professional knowledge, exposure to current research, policy understanding, and networking.	Outcomes focus on awareness and professional growth.
Themes and Technical Tracks	Defined themes, sub-themes, and technical tracks relevant to engineering streams.	Should align with conference objectives.
Paper / Presentation Guidelines	Submission requirements, review process, presentation format, and publication details.	Peer-review process encouraged.
Resource Persons and Speakers	Keynote speakers, session chairs, panelists, and technical experts with defined roles.	Recognized expertise required.
Teaching and Learning Methods	Knowledge sharing through presentations, discussions, question–answer sessions, and professional dialogue.	Emphasize exchange of ideas.
Resources and Proceedings	Conference proceedings, abstracts, technical papers, digital resources, and reference materials.	May include ISBN/ISSN publications.
Participation and CPD Criteria	Criteria for CPD credit allocation such as attendance, paper presentation, or session participation.	CPD points to be defined by NEC.
Certification	Certificates for participation, presentation, session chairing, or organizing roles.	Linked to CPD recognition.
Professional and Networking Outcomes	Opportunities for collaboration, research linkage, and professional networking.	Highlight long-term impact.

16. SYMPOSIUM

A symposium is a focused and theme-specific professional or academic event designed to promote in-depth discussion, expert exchange, and critical analysis on a defined technical, research, or professional issue. Unlike conferences, symposiums have a narrower scope and limited number of participants, allowing deeper engagement through expert talks, focused presentations, roundtable discussions, and moderated dialogue.

Symposiums contribute to CPD by advancing specialized knowledge and shaping future research or professional directions.

Table 5 Curriculum Structure for Symposium

Section	Description / Details	Guidelines
Symposium Overview	Description of the symposium theme, objectives, and focused scope.	Narrower focus than conferences.
Symposium Need Assessment	Identification of specific technical, research, or professional issues addressed by the symposium.	Problem- or theme-driven.
Stage of Career	Applicable career stages: Early Career, Mid-Career, Senior Career	Typically suited for experienced participants.
Target Participants	Subject experts, researchers, practitioners, policymakers, and selected students.	Participation may be selective.
Symposium Mode	Expert talks, focused paper presentations, panel discussions, roundtable discussions.	Highly interactive format.
Symposium Details	Duration, session structure, schedule, and venue/platform.	Usually one or two days.
Learning Outcomes	In-depth understanding of the theme, emerging challenges, research gaps, and future directions.	Outcomes are analytical and reflective.
Theme and Sub-Themes	Clearly defined central theme with supporting sub-themes.	Should support focused dialogue.
Presentation and Discussion Format	Guidelines for presentations, discussion time, and moderation approach.	Emphasize discussion over volume.
Resource Persons and Moderators	Experts, researchers, and moderators with specialized knowledge in the theme area.	Strong facilitation required.
Teaching and Learning Methods	Knowledge exchange through expert discourse, critical discussion, and shared experience.	Encourages depth over breadth.
Resources and Documentation	Symposium abstracts, technical notes, summary reports, or policy briefs.	May not require full proceedings.
Participation and CPD Criteria	Criteria for CPD recognition such as attendance, presentation, or panel contribution.	CPD allocation defined by NEC.
Certification	Participation or presentation certificates as applicable.	Clearly differentiate roles.
Follow-up and Knowledge Utilization	Recommendations, action points, research agendas, or policy inputs emerging from the symposium.	Important for professional impact.

17. RESEARCH & DEVELOPMENT

Research and Development activities refer to systematic investigations, applied research, innovation projects, and knowledge-creation initiatives aimed at advancing engineering science, technology, and professional practice. These activities may include research projects, pilot studies, technology development, applied innovation, and collaborative industry-academia research. R&D activities contribute to CPD by fostering analytical thinking, innovation capacity, and evidence-based professional practice.

Table 6 Curriculum Structure for Research & Development

Section	Description / Details	Guidelines
Program Overview	Brief description of the R&D program, its objectives, scope, and relevance to the engineering discipline and national priorities.	Emphasize innovation and knowledge generation.
Program Need Assessment	Identification of research gaps, industry challenges, societal needs, policy requirements, or technological opportunities addressed by the program.	Should be evidence-based.
Stage of Career	Applicable career stage(s): Early Career, Mid-Career, Senior Career	Depth varies by stage.
Target Participants	Researchers, practicing engineers, academicians, industry professionals, and graduate-level participants.	Define eligibility clearly.
Mode of R&D Program	Applied research, experimental research, field-based research, industry-collaborative research, or project-based R&D.	May be single or mixed modes.
Program Duration and Timeline	Overall duration, phases, milestones, and reporting schedule.	Typically, medium to long term.
Research Objectives and Questions	Clearly defined research objectives, problem statements, or research questions.	Must be specific and measurable.
Expected Outcomes	Tangible outputs such as reports, prototypes, designs, publications, policy briefs, or technical guidelines.	Outcomes should be verifiable.
Methodology	Research design, tools, techniques, data collection methods, analysis approach, and validation process.	Must be appropriate to discipline.
Ethical and Professional Considerations	Compliance with ethical standards, safety requirements, data integrity, and professional responsibility.	Mandatory section.
Resources and Facilities	Required laboratories, equipment, software, datasets, funding, and institutional support.	Adequacy must be demonstrated.
Supervision and Mentorship	Roles and qualifications of supervisors, mentors, or research advisors.	Essential for quality assurance.
Implementation Plan	Step-by-step execution plan including responsibilities and timelines.	Supports monitoring and evaluation.
Monitoring and Review Mechanism	Progress tracking, interim reviews, and corrective measures.	Periodic review recommended.
Dissemination of Results	Plans for sharing outcomes through reports, seminars, conferences, publications, or patents.	Encouraged for CPD recognition.
Assessment and Recognition	Criteria for evaluating completion and quality of R&D outputs.	Based on deliverables.
Certification and CPD Recognition	Certification upon successful completion and applicable CPD credits.	Defined by NEC policy.
Sustainability and Follow-up	Potential for continuation, scaling, or application of results.	Supports long-term impact.

18. OTHER CPD ACTIVITIES

Other CPD activities include structured professional learning experiences that contribute to maintaining and enhancing professional competence but may not fall strictly under training, workshop, seminar, conference, or symposium categories. These may include short courses, technical lectures, professional talks, panel discussions, mentoring programs, technical site visits, and approved online learning activities. Such activities may be as individual or self-learning of some specialization in the profession. These may include the online courses offered by the reputed institutions and prominent professionals. The CPD credits also be allocated as other programs.

Table 7 Other CPD Activities

S. No.	Program Type	Definition	Typical Duration	Primary Career Stage(s)
1	**Short Course (self-learning/study)**	A structured, focused learning program of limited duration designed to develop specific technical or professional knowledge or skills.	Few days to few weeks	Early Career, Mid-Career
2	**Refresher Program**	A program intended to update and reinforce existing knowledge and skills in response to changes in codes, standards, regulations, or technologies.	Short duration	Mid-Career, Senior Career
3	**Orientation Program**	An introductory program designed to familiarize participants with professional roles, standards, systems, or regulatory requirements.	Short duration	Student, Graduate
4	**Technical Talk / Expert Lecture**	A single-session or short series of expert-led presentations focused on sharing specialized knowledge or emerging trends.	Single session or short duration	All Career Stages
5	**Panel Discussion / Roundtable**	A structured discussion among experts addressing a specific professional, technical, or policy-related issue.	Short duration	Graduate, Early Career, Mid-Career, Senior Career
6	**Webinar / Online Learning Program**	A digitally delivered learning activity conducted through virtual platforms, either live or recorded, with or without interaction.	Flexible	All Career Stages
7	**Mentorship Program**	A structured professional development activity where experienced engineers guide less-experienced professionals for skill and career development.	Medium to long term	Early Career
8	**Technical Site Visit / Exposure Program**	An organized professional learning activity providing practical exposure to engineering projects, facilities, or infrastructure systems.	Short duration	Early Career
9	**Professional Development Course (PDC)**	A course focused on cross-cutting professional competencies such as leadership, management, ethics, safety, or contract administration.	Short to medium duration	Early Career, Mid-Career, Senior Career

19. CPD CREDIT ALLOCATION SYSTEM

Continuous Professional Development (CPD) is a structured process through which engineering professionals maintain, update, and enhance their technical competence, professional skills, and ethical standards throughout their careers. A CPD credit allocation system provides a measurable and standardized mechanism to recognize participation in approved professional learning activities. This system enables the Nepal Engineering Council (NEC) to ensure consistency, transparency, and quality in professional development while supporting lifelong learning and global competitiveness of Nepalese engineers.

A CPD credit is a unit of measurement assigned to approved professional learning activities that contribute to the enhancement of an engineer's knowledge, skills, competence, or professional practice. CPD credits reflect the time, depth, learning outcomes, and professional relevance of a given activity. Credits are accumulated by registered engineers over a defined period in accordance with NEC requirements for professional registration, renewal, or advancement.

Significance and Importance of CPD Credit Allocation: The CPD credit allocation system serves multiple professional and regulatory purposes:

- Ensures engineers remain technically competent and professionally current
- Promotes ethical practice, safety, and quality in engineering works
- Encourages structured and continuous learning across all career stages
- Provides a transparent basis for license renewal and professional recognition
- Aligns Nepal's engineering practice with international professional standards
- Supports national development by strengthening engineering capacity
- Encourages the contribution to the profession and professional societies

Principles of CPD Credit Allocation: CPD credits shall be allocated based on the following principles:

- Relevance: The activity must be directly related to engineering practice or professional development.
- Learning Outcome Orientation: Credits are linked to clearly defined learning outcomes.
- Time and Effort: Credits reflect actual learning time and participant engagement.
- Quality Assurance: Only NEC-approved or accredited activities are eligible.
- Career-Stage Appropriateness: Learning depth aligns with the participant's career stage.
- Balanced Development: Credits should cover technical, professional, managerial, and ethical competencies.

CPD Credit Allocation Criteria: CPD credits shall be determined by considering:

- Duration of the program or activity
- Nature and intensity of learning (theoretical, practical, research-based)
- Mode of delivery (in-person, online, blended, field-based)
- Level of participant engagement and assessment

- Quality and relevance of content
- Role of the participant (participant, presenter, facilitator, researcher)

Table 8 CPD Credit Allocation Framework

Program Type	Typical Basis for Credit Allocation	CPD hour ranges
Training Program	Hours of active participation and certification	0.5 per hour
Participation in Workshop/Seminar/ Conference/ Symposium	Hours of active participation and certification	0.5 per hour
Paper Presentation in Seminar/ Conference/ Symposium	Research presentation and dissemination	1 hour per presentation published in the proceeding
Short Course/self-learning courses	Hours of active participation and certification	0.5 per hour
Technical Talk / Expert Lecture/panel discussion	Session of active participation	2 hours per session
Technical Site Visit	Hours of practical exposure and learning	0.5 per hour
Mentorship Program	Structured mentoring engagement for each junior engineer	1 hour per individual

20. ROLE OF CPD CREDITS IN PROFESSIONAL REGULATION

Continuous Professional Development (CPD) credits serve as a formal regulatory tool through which the Nepal Engineering Council (NEC) ensures that registered engineers remain professionally competent, ethically responsible, and responsive to evolving technical, regulatory, and societal demands. By integrating CPD credits into the professional regulatory framework, NEC promotes lifelong learning, safeguards public interest, and maintains the credibility and quality of engineering practice in Nepal in line with national priorities and international standards.

CPD credits shall be used by NEC for the following purposes:

- Eligibility for PE registration,
- Renewal of Professional Registration,
- Professional Upgrading and Specialization Recognition,
- Compliance with National and International Professional Standards,
- Recognition of Diverse Professional Contributions,

21. REPORT AND DOCUMENTATION

To ensure accountability, transparency, and verification of participation in Continuous Professional Development (CPD) programs, all institutions and organizer must prepare structured reports and documentation upon completion of approved CPD activities. These reports shall be recorded in the institutions for future submissions if any.

Table 9 Structure of Program Completion Report

S. No.	Documentation Type	Details / Description
1	**Program Completion Report**	Includes program objectives, duration, career stage targeted, delivery mode, session-wise content, teaching and learning methods, and learning outcomes achieved.
2	**Attendance Register**	Verified list of participants including name, registration number, contact details, and signature.
3	**Participant Assessment / Evaluation Reports**	Summary of assessment methods, results, and verification of learning outcomes where applicable (e.g., tests, practical demonstrations, projects).
4	**Certificates of Participation (sample)**	Certificates awarded to participants including CPD credit value, program details, date, and NEC recognition reference.
5	**Resource and Session Documentation**	Copies of presentations, handouts, manuals, or other learning materials used during the program.
6	**Facilitator / Speaker Details**	Name, qualifications, experience, and role of trainers, speakers, or mentors involved.
7	**Feedback Summary**	Optional but recommended: participant feedback on program effectiveness and learning outcomes.

This guideline is intended to be a living document. NEC may revise, update, or refine provisions in response to evolving engineering practices, emerging technologies, national development priorities, and international professional standards. Institutions are encouraged to continuously improve program design and delivery while maintaining alignment with NEC requirements.

Schedule-I: Application for Recognition of Capacity Building Programs

Date: ……

To

The Registrar

Nepal Engineering Council

Kathmandu, Nepal

Subject: Application for Recognition of CBP Program

Dear Sir/Madam,

On behalf of **[Name of Institution/Organization]**, I would like to request for recognition of a **[training/workshop/seminar/conference/symposium/R&D]** program titled **"[Program Title]".**

The proposed program has been developed in accordance with the guidelines of the Nepal Engineering Council and is intended to contribute to capacity building for Continuous Professional Development (CPD) of engineering professionals. The program is designed for **[target career stage(s)]** and focuses on enhancing professional knowledge, skills, and ethical practice in the relevant engineering discipline.

We hereby request the Nepal Engineering Council to review the submitted program details and grant recognition along with applicable CPD hours. We assure you that the program will be implemented in compliance with NEC standards, and all required reports and documentation will be submitted upon completion.

Thank you for your consideration. We look forward to your kind approval.

Yours sincerely,

……

Name:

Designation:

Institution/Organization:

Contact Number:

Email:

Note: Attached Curriculum

Seal of Institution

Schedule-II: Certificate of Participation / Completion

This is to certify that

Mr./Ms./Engr. .....

NEC Registration No.: .....

has successfully participated in / completed the

[Training / Workshop / Seminar / Conference / Symposium / R&D Program]

titled

"....."

organized by [Name of Institution / Organization],

and accredited by the Nepal Engineering Council (NEC),

held on [date(s)] at [venue / mode].

The program was designed for **[career stage: Student / Graduate / Early Career / Mid-Career / Senior Career]** and covered relevant professional knowledge, skills, and ethical considerations in the engineering discipline.

This program is recognized for **[number] CPD Credit(s)** as per NEC guidelines.

Date of Issue: ……

Certificate No.: ……

……
Trainer (Lead Resource Person)
Name:
Signature:

……
Authorized Representative (organizing Institution)
Name:
Designation:
Institution / Organization

Seal of the Organizing Institution

Schedule-III: Certificate of Recognition

This is to certify that the "……." under the category of "[Training / Workshop / Seminar / Conference / Symposium / R&D Program]" is approved by the meeting of Capacity Building Program Recognition Committee dated ……

Recognition ID: ……..

Allocated CPD hours: ……..

Date of Validity of recognition: ……..

Each page of an accredited program is signed and sealed by the Registrar of Nepal Engineering Council. Any changes in the program shall be reapply for recognition.

……
Registrar
Name:
Date: