

EMERGING PROFESSIONAL DEVELOPMENT FRAMEWORK

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Institute of Engineering Professionals

WHAT'S THE EMERGING PROFESSIONAL DEVELOPMENT FRAMEWORK?

One of the great things about engineering graduates is you're so motivated to help build a better life for New Zealanders. You want to stand out and show what you can do. So we've designed a learning framework to help you differentiate yourself. As an Emerging Professional Member, you'll build strong technical experience and professional practice skills earlier in your career.

We've designed the framework to complement your employer's development programme – or to give you access to structured professional development if it's not available from work. Plus, by working through the framework, you'll be eligible to fast track to our Member class, instead of waiting out the five years required as an Emerging Professional Member otherwise.

AM I ELIGIBLE?

To participate in your employer's programme or follow this framework, you need to be an Engineering New Zealand Emerging Professional Member, which means you'll have:

- completed an accredited engineering or engineering geology qualification, or demonstrated knowledge through an assessment
- committed to the Engineering New Zealand Code of Ethical Conduct, and continuing professional development
- less than 5 years' work experience.

After you've completed your engineering qualification, you will automatically be upgraded from a Student Member to an Emerging Professional Member. Or, if you're new to Engineering New Zealand, you can apply online.

HOW DOES IT WORK?

The framework is designed to help you become the best professional you can be, right from the early days of your career. Completing the framework means you can join the Engineering New Zealand Member class faster, and then start working towards becoming a Chartered Member (the membership class assessed to an international standard).

We expect most people will take two to three years to work their way through the framework. After five years, all Emerging Professional Members automatically move to the Member class.

The framework sets out 120 hours of learning for you to complete when it suits you – but you should be completing 40 hours each year as part of your annual commitment to continuing professional development. Your learning will cover six areas:

- Ethics (15 hours)
- Safety (20 hours)
 - Health and safety
 - Safety in Design

- General technical (20 hours)
 - Quality control and assurance
 - Risk management
 - Project management
 - Financial management
 - Contracts (basic)
 - Sustainability and environmental impact
 - Innovation
- Technical specific to role (40 hours)
- Communication (15 hours)
 - Writing skills
 - Communication for success (including presentations)
 - Stakeholder relationship management
 - Effective team work
- Professional acumen (10 hours)
 - Time management and planning
 - Networking
 - Diversity and culture
 - Leadership development
 - Career planning

The time allocation applied to each learning area covers a three-year period and is indicative only. However, it is expected that 10–15 hours would be dedicated to each broad learning area during that time.

Some disciplines of engineering will not require all the competences listed. If there are one or more not relevant to your discipline you can give a brief explanation of why when you apply to be upgraded to the Member class.

Completing the learning framework counts towards the requirements for our assessed membership class, Chartered Member, and registration as a Chartered Professional Engineer (CPEng). However, this alone is unlikely to be enough to demonstrate competency in the 12 assessed areas.

You can see details of the learning framework at the end of this document.

CHOOSE FROM A VARIETY OF LEARNING ACTIVITIES

There's no 'one way' to complete the learning framework. You can use a variety of learning activities.

Work-based learning

This might include formal induction training, workplace knowledge sharing or on-the-job training.

Professional body activities

You could go to a lecture, webcast, workshop or site visit, or join a committee. If you deliver a paper or presentation, or promote engineering in schools or colleges, that counts too. You can also consider volunteer work and applying successfully for registration as a Chartered Professional Engineer as professional body activities.

Self-directed learning

Reading or watching relevant content is a great way to boost your learning and to get a broad view of your industry. If you publish a journal article, you can include that in your CPD.

Mentoring

Being mentored or mentoring someone else is a good way to develop professionally and gain deeper technical understanding. This also counts towards your CPD hours.

Courses, seminars and conferences

Keep track of the courses, seminars or conferences you attend, what you learnt and whether you delivered a presentation. You don't have to have attended in person for it to count, so keep a record of your e-learning and computer-based learning, too.

Further education

If you study towards a relevant Bachelor's degree, Master's degree, PhD, Diploma or Certificate, you can count it towards your CPD hours.

COMPLETING YOUR EMPLOYER'S DEVELOPMENT PROGRAMME INSTEAD

If you're employed by an Engineering New Zealand Professional Development Partner (PDP), you can complete their programme instead of our framework. You can move to our Member class when they confirm you've completed their programme and are ready to progress.

KEEP TRACK OF YOUR LEARNING

Using our member area online is the simplest way to track your learning. It will give you a career-long summary of all your CPD activities, so you can look back at what you've learnt as an engineer. It will give us evidence that you've completed all the learning areas.

You don't need to use our online system to record CPD if you're completing a programme with your employer that's a PDP. You can move to our Member class when they confirm you've completed their programme and are ready to progress.

PROGRESSING TO THE MEMBER CLASS

Once you've completed training in all areas of the Emerging Professionals framework, you're eligible to move to our Member class. To do this you'll need to complete a short form with an outline of the learning you've completed and then use this to apply to transfer to the Member class by emailing the team with your form, membership@engineeringnz.org.

If you're employed by a PDP and you complete their development programme, they'll tell us when you've completed their programme and are ready to progress. We'll then transfer your membership to the Member class.

If you choose not to take part in a development programme, you'll automatically transfer to the Member class after five years.

LEARNING FRAMEWORK

Topic	Competency explained	Examples of workplace experience/opportunities you could undertake to support your development	Formal learning opportunities (relevant Engineering New Zealand courses)	Additional resources
Ethics	<ul style="list-style-type: none"> • Demonstrates an understanding of the Engineering New Zealand Code of Ethical Conduct. • Behaves in accordance with the Engineering New Zealand Code of Ethical Conduct even in difficult circumstances – includes demonstrating an awareness of limits of capability; acting with integrity and honesty and demonstrating self-management. • Demonstrates professional behaviour in all interactions and in all areas of engineering activities. This includes relationships with clients, colleagues, project team members and all other stakeholders. It also applies to all communications 	<ul style="list-style-type: none"> • Conduct your own work safely, reporting problems or incidents. Consider the effects of your work on the public and the environment, taking action over problems or incidents. • Use mentoring opportunities to discuss ethical situations that arise and possible responses. • Feel empowered to raise ethical concerns – work quality, safety, and bounds of competence. • Analyse a situation involving conflicting professional and ethical interests to determine an appropriate course of action. • Distinguish between a moral, legal, or management issue and an ethical matter. 	<p>On-demand Modules</p> <ul style="list-style-type: none"> • Code of Ethical Conduct <p>Courses</p> <ul style="list-style-type: none"> • Ethics for Engineers 	<ul style="list-style-type: none"> • Progressive write-up of the outcomes of complaints and disciplinary processes. • Read the Engineering New Zealand Code of Ethical Conduct. • Read case studies online illustrating the application of the Engineering New Zealand Code of Ethical Conduct.

	<p>whether face-to-face encounters, phone conversations (including voicemails) or in writing (including all forms of digital media).</p>	<ul style="list-style-type: none"> • Assemble appropriate resources to assist in the resolution of an ethical dilemma. • Formulate the solution to an ethical dilemma.
<p>Safety – health and safety</p>	<ul style="list-style-type: none"> • Applies workplace health and safety procedures and processes to operate safely, including workplace drug and alcohol policies. • Actively participates in all workplace health and safety matters. • Applies knowledge of hazards and hazard management. • Recognises unacceptable practice and appropriately draws attention to it. • Maintains personal wellbeing especially during times of increased workload or stress. 	<ul style="list-style-type: none"> • Complete workplace and site/laboratory/workshop induction training. • Practice safe work habits – use of PPE. • Complete HAZOP training and application of hazard identification/mitigation processes. • Complete first-aid training. • Complete an appropriate Site Safe training course. • Look after yourself physically, through a healthy diet, regular exercise and adequate sleep. • Strive for balance between your professional role and your personal life. • Monitor and manage your stress in positive ways, eg through exercise.

- **Webinars (live/recorded)**
 - Risk Management – The Healthy Side of Paranoia
- **On-demand Modules**
 - Engineers and the Health and Safety at Work Act
- **Courses**
 - Negligence and Liability
 - Temporary Works: Risk and Analysis
- Familiarise yourself with the [Site Safe website](#).

		<ul style="list-style-type: none"> Find a mentor through your workplace or professional networks and use that person's support to help you grow professionally and personally. 	
Safety – Safety in Design	<ul style="list-style-type: none"> Evaluates and contrasts the safety aspects of design alternatives for a process, project component or product. Identifies and applies the safety-related regulatory requirements pertinent to a process, project component or product. Identifies changes in safety-related regulatory requirements in your specific area of engineering. 	<ul style="list-style-type: none"> Apply safety by design principles and considerations as an integral part of your role. Document and report on the safety in design process and outcomes for a work project. 	Courses <ul style="list-style-type: none"> Maximising Quality Through Design
General technical – quality control and assurance	<ul style="list-style-type: none"> Understands and applies quality control and quality assurance frameworks and practices as used by organisation and industry. 	<ul style="list-style-type: none"> Be aware of your organisation's quality control and quality assurance framework and practices Use quality control and quality assurance frameworks in a range of contexts within your organisation. 	Webinars (live/recorded) <ul style="list-style-type: none"> Understanding QA Frameworks Courses <ul style="list-style-type: none"> Negligence and Liability

		<ul style="list-style-type: none"> Analyse the impact of QC/QA on project performance. Seek feedback and mentoring. 	
<p>General technical – risk management</p>	<ul style="list-style-type: none"> Understands and applies risk management frameworks and practices as used by organisation and industry. Identifies and analyses risk in a credible and systematic way. Communicates risk concepts in operational analysis, reports and presentations. 	<ul style="list-style-type: none"> Be aware of your organisation’s risk management frameworks and practices Use risk management frameworks and practices - where appropriate - in various stages of your own work. Seek feedback and mentoring. 	<p>Webinars (live/recorded)</p> <ul style="list-style-type: none"> Risk Management – The Healthy Side of Paranoia
<p>General technical – project management</p>	<ul style="list-style-type: none"> Understands general project management methodologies and applies in context of own work. 	<ul style="list-style-type: none"> Be aware of your organisation’s project management methodologies. Seek out opportunities to have experience in a project management leadership role, or supporting a project manager on a project. Use appropriate procedures, eg to scope the project, to manage the physical resources, costs, and procurement, and respond to change. 	<p>Webinars (live/recorded)</p> <ul style="list-style-type: none"> The Far Side – People in Project Management Project Management Fundamentals Project Management – Taming the Beast <p>Courses</p> <ul style="list-style-type: none"> Practical Project Management

		<ul style="list-style-type: none"> Seek feedback and mentoring. 	
General technical – financial management	<ul style="list-style-type: none"> Understands basic accounting budgeting, project costing/estimating managing projects within budgets. Compares design alternatives with varying cost profiles or a present worth or annual cost basis. 	<ul style="list-style-type: none"> Contribute to estimates and tender submission activities, project management and budgets (preparation and monitoring reporting). Seek feedback and mentoring. 	Webinars (live/recorded) <ul style="list-style-type: none"> Understanding Finance
General technical – contracts (basic)	<ul style="list-style-type: none"> Exposure to the management of contracts and client/contractor relations. Has an awareness of the range of contracts for different types of work. Applies defined methods, processes and templates. 	<ul style="list-style-type: none"> Participate in the contracting process with an experienced colleague. Assist the management of contracts to acceptable contracted outcomes. Evaluate or prepare quotes or tenders. Prepare evaluation recommendation reports. Apply standard forms of contract (FIDIC and NZS3910/3915). Seek feedback and mentoring. 	Webinars (live/recorded) <ul style="list-style-type: none"> Contracts: Stages of Completion and Defects Contract Law for Non-Lawyers Contracts: The Engineers Role Contracts: Short Form Contracts: Long Form FIDIIC Courses <ul style="list-style-type: none"> NZS 3910:2013 – An Introduction The Engineer to the Contract
General technical – sustainability and	<ul style="list-style-type: none"> Recognises potential impacts and long-term effects of their 	<ul style="list-style-type: none"> Consider sustainability and environmental impacts when 	Webinars (live/recorded)

environmental impact

engineering activities on the environment.

- Understands mitigation options.
- Identifies the need for sustainable solutions to engineering and construction activities.

undertaking all engineering activities and then develop effective strategies and solutions.

- Examine alternative solutions and look at the wider implications on the environment.
- Consult with experts in other disciplines related to the problem and/or solution.

- Our Impact on Our Environment (4-part series) – Earth, Water, Marine and Air
- Global Trends in Business and the Environment
- Commercial – Industrial Solar Heat
- Crime Prevention through Environment Design
- Design Specification of Solar Thermal Technology
- Energy Efficiency
- Rainwater Technologies
- Renewable Giants – Design of Offshore Windfarms
- Solar Hot Water
- Solar Power Electricity
- Solar Hot Water Tech & Comparisons

Courses

Energy Storage Devices for a Renewable World

General technical – innovation

- Has an awareness of global impacts and influences on engineering.
- Identifies the need for continuous improvement.

- In engineering activities where appropriate, apply design thinking methodology to solve a problem.

Webinars (live/recorded)

- Innovation without buzzwords
- Mind to Market – Turning Ideas into Business

- Get involved with or start an innovation challenge within the organisation you work for, eg Beca’s innovative concept design challenge.

<ul style="list-style-type: none"> • Considers alternative approaches and techniques within the scope of work and needs of the client. 	<ul style="list-style-type: none"> • In engineering activities, where appropriate, challenge the status quo and ask yourself critical questions: <ul style="list-style-type: none"> ○ Can this be done differently? ○ Is there an opportunity to improve existing processes and functions? ○ Can I adapt something that has been successfully tried elsewhere? • Communicate creative solutions and ideas freely and with confidence – channel ‘permission to solve’. 	<ul style="list-style-type: none"> • Crossing the chasm – Marketing Innovation 	<ul style="list-style-type: none"> • Ask your employer to nominate you to participate in Smart Seeds – Fresh ideas for our future infrastructure.
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<p>Communication – writing skills</p>	<ul style="list-style-type: none"> • Expresses ideas clearly and concisely. • Tailors written communication to effectively reach the target audience. • Uses visual aids, drawings and sketches to clarify complex or technical information. • Spells correctly. • Uses punctuation correctly. 	<ul style="list-style-type: none"> • Research and prepare formal reports, evidence and supporting documentation. • Prepare reports or proposals for specific audiences; addressing specific topic/needs, eg technical presentations, reports for clients, and bids. • Have your writing peer reviewed and offer to be a peer reviewer. 	<p>Webinars (live/recorded)</p> <ul style="list-style-type: none"> • Technical Writing Tips
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	<ul style="list-style-type: none"> • Uses an appropriate writing style for the audience and type of communication (email, text). 	<ul style="list-style-type: none"> • Proof read your own work, paying attention to mistakes in grammar, style and spelling. Proof read the work of your colleagues. • Have your mentor review your work and provide feedback. 		
<p>Communication – communication for success (includes presentation skills)</p>	<ul style="list-style-type: none"> • Verbally or visually presents information in a way that is accessible to the audience. • Addresses the needs of the audience in a range of situations, eg different group sizes, peers or management, and technical and non-technical groups. • Summarises technical information into language appropriate to the audience (technical and non-technical) and the situation. • Speaks clearly and can be easily understood. • Uses appropriate grammar and choice of words. • Organises ideas clearly. 	<ul style="list-style-type: none"> • Plan, prepare and deliver an oral presentation with appropriate visual aids, handouts and/or other supporting material. This could be a presentation to the local high school or key messages you took away from a course or conference you attended. • Accompany a senior colleague to a bid presentation. • Be an active participant in meetings – ask questions and share your ideas with confidence. • Provide a colleague with effective feedback on their work performance. 	<p>Webinars (live/recorded)</p> <ul style="list-style-type: none"> • Communicating for Success • Effective Presentation Skills • Technical Presentation Skills – Structure • Technical Presentation Skills – Delivery • Technical Presentation Skills – Visual Aids • Technical Presentation Skills – Communication Tools <p>On-demand Modules</p> <ul style="list-style-type: none"> • Perfecting Your English • The Foundations of Plain English 	<ul style="list-style-type: none"> • Join Toastmasters. • Participate in Engineering New Zealand Speed Interviewing events. • Become a Wonder Project ambassador.

		<ul style="list-style-type: none"> • Receive feedback from your mentor. 	
Communication – stakeholder relationship management	<ul style="list-style-type: none"> • Dedicated to meeting and/or managing the expectations and requirements of stakeholders both internal and external. • Acts with stakeholders in mind. • Establishes productive working relationships with stakeholders and gains their trust and respect. 	<ul style="list-style-type: none"> • Accompany a senior colleague to a stakeholder meeting. Spend time with them understanding their relationship management drivers and techniques. • Engage with stakeholders to find out what they appreciate and value in their dealings with you. This could include understanding their cultural needs. 	Webinars (live/recorded) <ul style="list-style-type: none"> • Communication: Stakeholder Relationship Management • Attend stakeholder functions whenever possible.
Communication – effective team work	<ul style="list-style-type: none"> • Listens and responds constructively to other team member’s ideas. • Expresses disagreements constructively. • Provides honest and constructive feedback to other team members. • Shares expertise with others. • Commits to the team deliverables and actively contributes until project completion. 	<ul style="list-style-type: none"> • Serve as a productive member of a work or project team. • Contribute effectively regardless of the role you hold. • Ask questions. • Find opportunities to give feedback to your team members commenting on their behaviour not the personality and be open to receiving feedback. 	Webinars (live/recorded) <ul style="list-style-type: none"> • Communicating for Success • Conflict Resolution: Dealing with Difficult People • Effective Delegation Skills • Effective Team Work

		<ul style="list-style-type: none"> Contribute to a positive team dynamic. 		
Professional acumen – time management and planning	<ul style="list-style-type: none"> Applies relevant time management, planning tools and techniques. Uses time effectively and efficiently. Concentrates efforts on the most important priorities. Adeptly handles several tasks in within a given timeframe. 	<ul style="list-style-type: none"> Determine work deliverables, timeline, resources and support, and sequence of events – prioritise. Identify the most important priorities to deliver on work objectives in the required timeframe. 	Webinars (live/recorded)	<ul style="list-style-type: none"> Business Strategy for Real People Time Management – Getting the Right Things Done
Professional acumen – networking	<ul style="list-style-type: none"> Builds and maintains effective and constructive working relationships, partnerships or networks of contacts with people who are, or might someday be, instrumental in achieving work-related goals (internal and external). 	<ul style="list-style-type: none"> Ask questions designed to learn about others and develop relationships. Be alert for opportunities to connect your networks and provide access to resources. Share knowledge gained from courses, conferences and meetings you attend. Engage with corporate young professionals groups or technical discussion groups relevant to discipline. Engage externally with Engineering New Zealand branches or groups. 	Webinars (live/recorded)	<ul style="list-style-type: none"> Professional Acumen – Networking LinkedIn – The Perfect Network Advance LinkedIn Join your local Engineering New Zealand branch or Young Engineers group. Reach out to Young Engineers groups at other organisations in your area.

Professional acumen – diversity and culture

- Considers Treaty of Waitangi implications and consults accordingly.
- Considers and takes into account possible social and cultural impacts and consults accordingly.
- Recognises that diversity consists of all the different factors that make up an individual, including age, gender, culture, religion, personality, social status and sexual orientation
- Consider culture and diversity in your workplace, the projects you are involved in and the people you interact with.
- Participate in cultural or diversity celebrations within your organisation or the local community.
- Familiarise yourself with cultural customs and/or language to strengthen relationships with stakeholders by demonstrating awareness and respect.

Courses

- The Bicultural Basis of Aotearoa & the Implications

Professional acumen – developing leadership potential

- Recognises that self-leadership is the foundation of developing leadership potential.
- Applies self-leadership principles.
- Develops an understanding of the characteristics of good leadership.
- Ask for support and direction, if you don't have the tools, skills and competence to do a specific task or solve a problem.
- Question assumptions, old beliefs and behaviours that limit effectiveness in your role.
- Challenge yourself to take on tasks or projects that are out of your comfort zone.

Webinars (live/recorded)

- Unshakable Self-Confidence
- Influencing with Impact
- Developing Leadership Potential
- Become a regional representative or national Chair for the Engineering New Zealand Young Engineers group.
- Become a Wonder Project Ambassador.
- If there isn't a Young Professionals group in your workplace, start one.

	<ul style="list-style-type: none"> • Seek out opportunities to lead on team activities. • Take up opportunities for leadership within your personal life – such as sports teams. 	
<p>Professional acumen – career planning</p>	<ul style="list-style-type: none"> • Demonstrates a commitment to extending and developing knowledge and skills. • Participates in education, training, mentoring or other programmes contributing to career path. • Considers career pathways and appropriately plans for the next stage in engineering career. • Maintain learning and work records on a regular basis. 	<ul style="list-style-type: none"> • Work through ideas and develop an appropriate career plan in consultation with your mentor. • Review your career plan at least annually and share appropriate elements of the plan with your mentor or manager. • Create and work to an annual development plan that supports your career plan. • Identify learning opportunities that support your career path and present these to your employer.
<p>Webinars (live/recorded)</p> <ul style="list-style-type: none"> • Career Bootcamp (4-part series) • Personal Branding 	<ul style="list-style-type: none"> • Talk to us about having the Take the Next Steps Presentation held in your workplace. 	