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Mechanical Engineering Practice

Gail Jackman

Industry Liaison Manager: Teaching and Learning

Preparing for Industry

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Skills Industry Want

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Your vocation your vacation

Choose a job you love, and you will never have to work a day in your life.

- Confucius

Be paid for what you love doing so it does not feel like work

You and your employer will have greater results

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Why Chartered?

Why become Chartered?

Chartered is exclusively for engineers of all disciplines and career stages who have demonstrated leadership by inviting independent scrutiny and validation of their:

- engineering experience
- ethical practice
- and dedication to continuous professional development

https://www.engineersaustralia.org.au/professional-development/professional-development-program

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Why?

For Engineers, Chartered is:

- **Pride** – confidence in your ability and acknowledgement of your achievements
- **Credentials** – assurance for clients and the broader community
- **Competitive edge** – recognised by peers and valued by employers
- **Registration** – a pathway to Registration on one of three national engineering registers and Registered Professional Engineers of Queensland (RPEQ)
- **Global recognition** – International Accords enable acceptance of skills and knowledge on the world stage
- **Mobility** – Mutual Recognition Agreements promote professional links and opportunities worldwide
- **Professionalism** – supported by Engineers Australia – the nation's premier engineering network

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Competencies

1. Knowledge and skill base
2. Engineering application ability
3. Professional and personal attributes

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CERs

Designed to demonstrate your engineering competencies

Demonstrate to Engineers Australia you can apply your knowledge and skills at a level of a professional engineer, technologist or associate

Provide detail of what you have done to show Engineers Australia assessors you have the competencies given in the elements and sub-elements for the discipline and level you are applying for recognition

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CERs

- Engineers Australia want details.
- Details of **YOUR** thought processes and actions
- Evidence of your actions and the results
- Details related to the competencies
- Details for all sub-elements of all elements of all competencies
- Every paragraph must relate to a competency element

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Writing style

Prescriptive writing style:

- It is personal
- The most frequently used words will be “I” or ‘my’
- It is active. I planned, I calculated, I measured, I obtained feedback, I researched
- It is simple and clear
- It is full of facts and detail
- Everything relates to engineering competencies

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Proof in actions

Don’t tell Engineers Australia what you know or how clever you are.

Tell them what you have done.

This provides proof you can apply your knowledge: you have the competencies they are looking for.

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Teamwork and leadership

You need to demonstrate you can interact and provide leadership and obtain support in a team.

Your episode must clearly write about what you did as part of the team. “I prepared the technical scope for the supply of a new heat exchanger…..”

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CER Support

Engineers Australia provide support:

- Support programs
- Group workshops
- Support materials
- Workplace support visits

Many organisations also provide in-house support to their engineers to work on their CERs and their Chartered status

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EA Presentations

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Chartered Presentation - May

Tuesday 26th May 2015 - 12:15pm arrival for 12:30pm to 1:30pm

Come along to a combined presentation on Chartered Pathways and Chartered Writing Workshop, presented by Business Development Manager - Jason Thornhill, and National Assessor Maurice Berry FIEAust CPEng.

Complimentary light lunch will be supplied. Please arrive at 12:15pm for a 12:30pm start, where we will cover the reasons why and how an engineer should become Chartered, before leading into the content, writing style and information that our Assessment team are looking for.

This will be followed by a Q & A session, plus the chance to network in a friendly and informal setting with our National Assessors and Business Development team.

Please note that this information session is intended for current Members of Engineers Australia OR those with relevant engineering qualifications who are eligible to become members.

REGISTRATION IS COMPULSORY

More like this

South Australia Division, Adelaide, Roxby Downs

Event Details

Date
Tue 26 May 2015 - 12:15 pm to 1:30 pm

Venue
Engineers Australia - Level 11, 108 King William Street, ADELAIDE SA 5000

Cost
Members:
FREE - please register
Non Members:
FREE - please register

Host
Engineers Australia

Key Speaker
Business Development Manager - Jason Thornhill, and National Assessor Ewan Hazeldine FIEAust CPEng

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Professional Development

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- Chartered Status
- Access PDP Resources
- Engineering Executive
- EA Connect for Employers
- EA Connect for Students
- Partnering with Employers
- Continuing Professional Development
- Career Development Centre
- The Professional Year in Engineering

Print

Professional Development Program

BE SUPPORTED by Engineers Australia to BUILD your engineering competency and BECOME Chartered:

The Professional Development Program (PDP) is one of the four pathways that Engineers Australia offers for members to achieve Chartered Status.

The PDP is the best way for individuals and for Organisations to support their employees, to work through the Chartered application requirements in a structured and supported process.

You can participate, and join over 5000 others, as an individually sponsored participant or as a sponsored participant of one of our 300+ PDP Partner organisations.

Why become Chartered?

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The EA Insider | Professional Development Program

Follow the @TheEAInsider

How do I join the PDP?

1. Be an EA Member at the grade of Graduate or higher
2. Login to the eChartered portal & enrol on the PDP Pathway
3. Complete the online enrolment form
4. Take some time to prepare by reviewing the PDP resources & finding a mentor before jumping into submitting your Competency claims.

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CERs

With every sentence you write, ask this question

"Do these words tell Engineers Australia about something I have done personally; actions which show them I have applied part(s) of elements of a competency?"

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Practice

Make it to Carnegie Hall? How do you get to Carnegie Hall? Practice.

Take the opportunity in all of your uni projects to write a CER to be well prepared when you graduate

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Map elements to competencies

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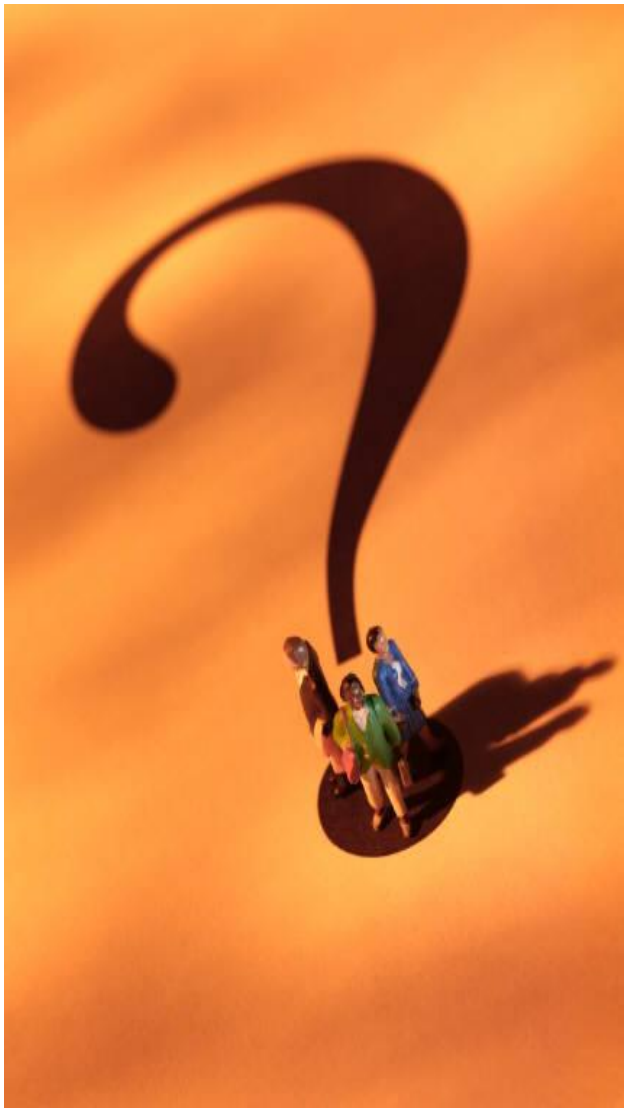
Key skills

What is the most sought after skill by employers in the Australian job market?



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Communication!

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Effective communication

***'The single biggest problem in communication is the illusion that it has taken place'*--George Bernard Shaw**

***"If you talk to a man in a language he understands, that goes to his head. If you talk to him in <u>his</u> language, that goes to his heart."*--Nelson Mandela**

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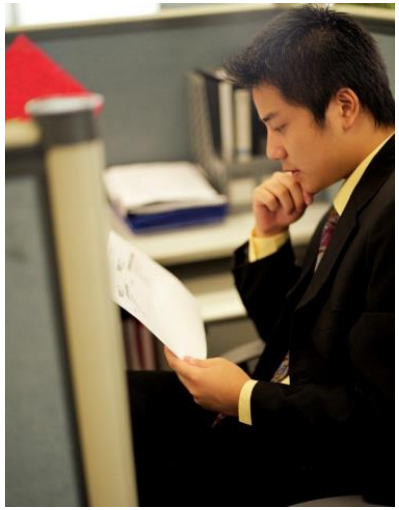
How?

Express your ideas clearly and confidently in speech

Express yourself clearly in writing

Listen and clearly understand (active listening)



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Number 1

The one skill mentioned most often by employers is the ability to listen, write, and speak effectively.

Successful communication is critical in every business!

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Why?

Employers are looking for employees who can build relationships

- quickly understanding and responding to clients' needs – a key to increasing revenue

Professional and efficient electronic communications skills

Prepare professional and technical reports

Work successfully in a team

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Log Books

Industry practice:

- Keep a record in projects
- What you did and why
- What decisions and why
- Problems faced
- Solutions developed
- Materials used

Clear, concise and accurate documentation can use for your project reports or for any investigations

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Technical Writing

Technical information is wasted when not communicated effectively.

Research, investigations or reports will not generate results if they are not formatted and written in a professional manner.

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Technical Reports

Technical reports include various types of "technical" information:

- If you need to report why a design or piece of equipment failed, you'd write a **forensic report**.
- You would produce a **design report** about a design you created
- Or you may need to combine these two. Many report types are classified as technical reports.

You should always determine what information you need to convey and who your audience is before you start writing.

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Winning Technical Reports

Written reports get your projects funded.

They allow non-technical decision makers to understand your expertise and your results.

If you can't write well, no one will read, or understand, your results.

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Winning Business Cases

Key steps involved in writing a business case that aligns to your organisations' unique business requirements and drivers.

Need to present your case to key stakeholders with impact, maximising the chances of acceptance and empowering your organisation to make better business decisions.

- Systematic processes required to develop a business case
- Bridge the gap between technical justifications and business expectations
- Appreciate the cost/benefit expectations of management
- Identify key information to address tricky questions
- Identify and compare costs and benefits of alternative solutions
- Apply risk assessment techniques to forecast and mitigate issues
- Prioritise alternative solutions according to key decision criteria

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Most Wanted with Enthusiasm

- Communication
- Team Work
- Presentation / public speaking
- Planning and organising
- Problem Solving
- Technical skills
- Safe work practices
- Leadership / Management
- Conflict resolution

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Common set of skills

Regardless of the role in which you will be working, there are a common set of skills that employers look for across **all** engineering disciplines:

Effective communication skills - with an increase in the documentation and instructions that engineers use in the workplace, **clear and concise communication** is a requirement.

Interpersonal skills - you need to know how to **effectively work as part of a team** and **work with customers** to identify needs and provide solutions.

Technical knowledge - whatever **technical expertise** is vital to your job, you need to understand how to apply this to **solving practical problems**.

Organisational skills - being able to **prioritise tasks**, manage your time effectively and resource planning are key skills for engineers.

Enthusiasm and commitment - learning new skills is part of every engineer's role, so you need to be **adept at assimilating a lot of new information**.

More importantly, employers are looking for evidence that you are **well rounded**, take an **active interest** in and have an **understanding of the engineering industry**. Furthermore, that you have the **motivation, drive and ambition** to make an impact within their company.

Source: 2014 Monster Careers

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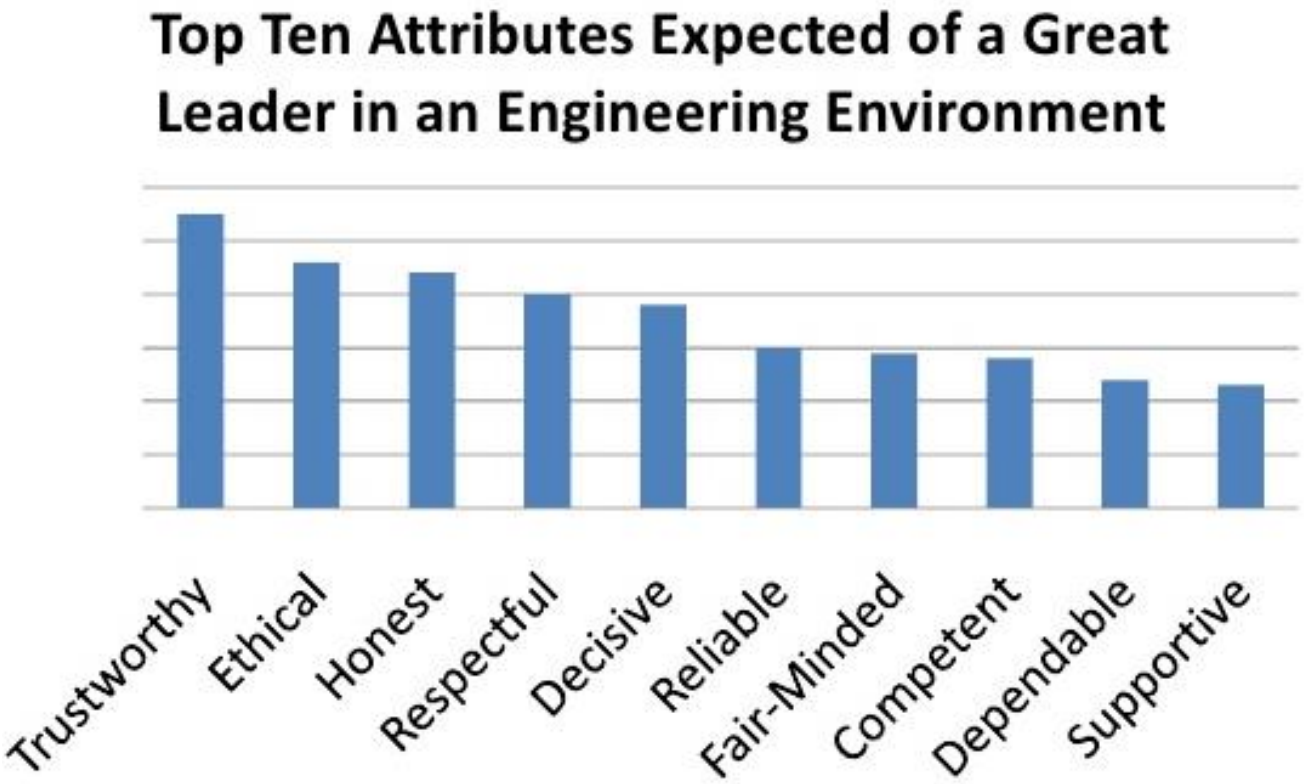
Leadership Qualities

2010 Engineers Australia member survey

Total Leader and Coach Solutions (TLC)



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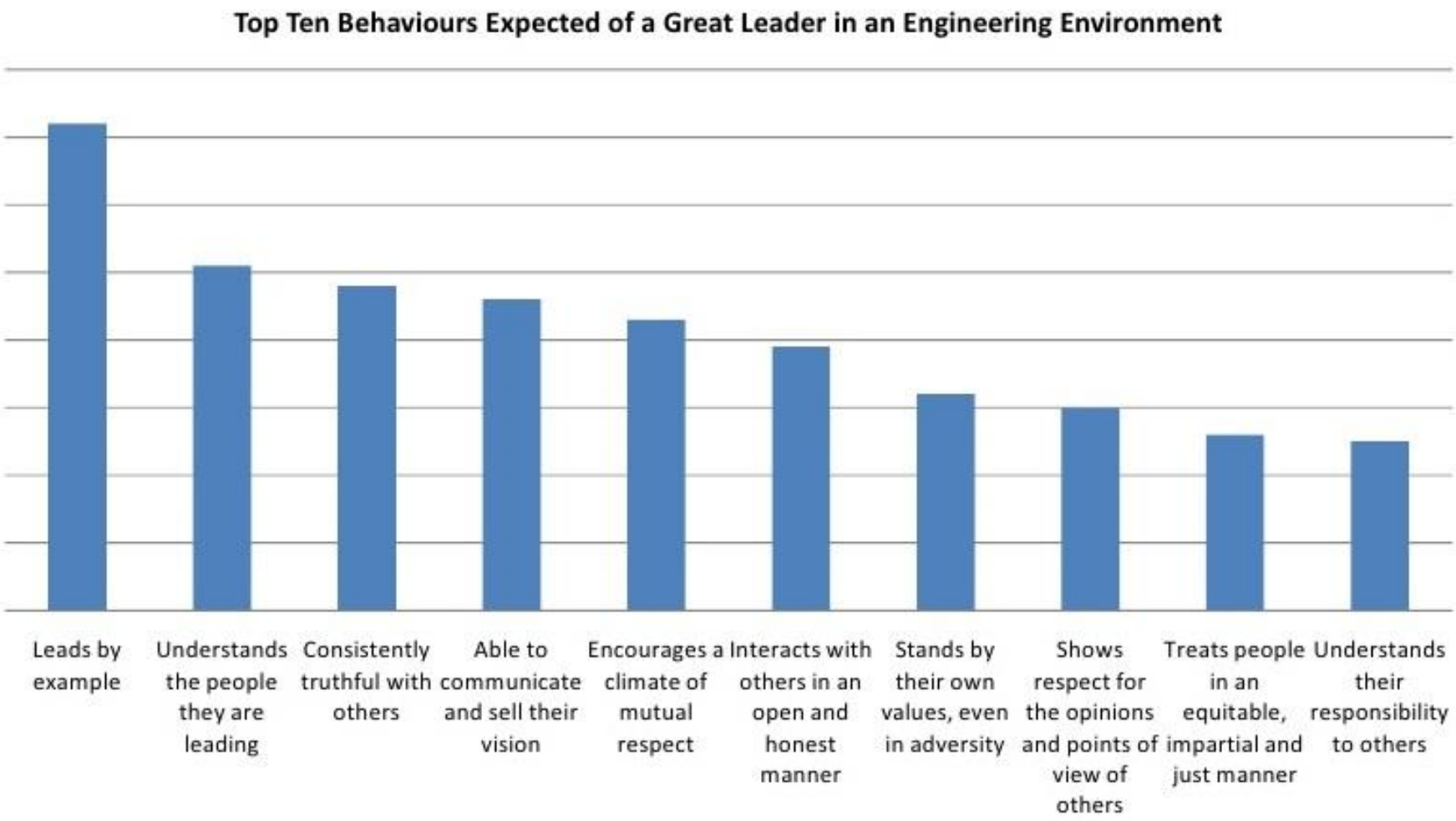
Leadership Behaviours



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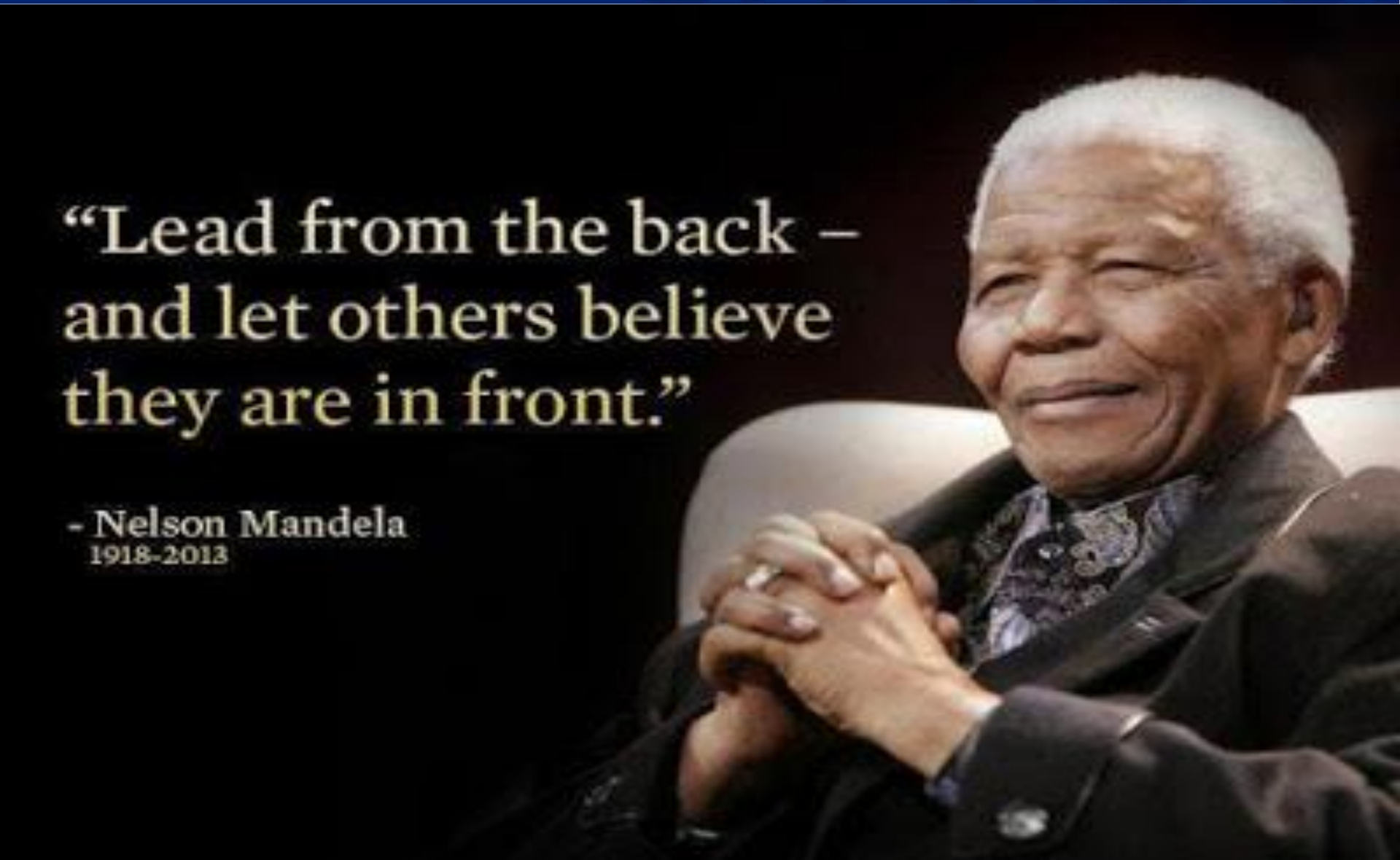
Leadership



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Productive Meetings

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Team Work

- Team work, communication, following instructions, achieving goals, commitment

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Presentation Skills

Present to clients, project team, management

How to be insanely great in front of any audience
Presentation secrets of Steve Jobs
Presentation genius of Steve Jobs

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Time Management

Effective time management skills will enable you to have greater efficiency in the workplace.

Ensuring you can prioritise your tasks to get everything important and urgent completed in a timely manner.

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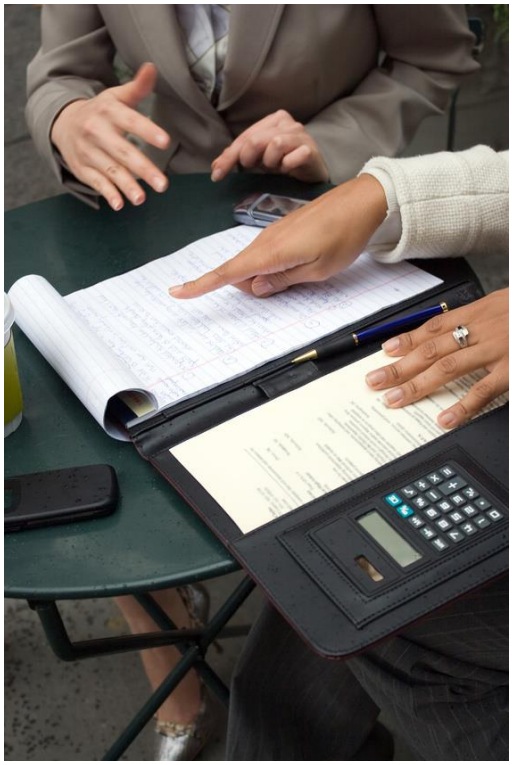
Planning and Organising

Events

- USASA
- Student Ambassador
- Committees



Meet deadlines while studying, working part-time, sport, community work

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Problem Solving & Conflict Resolution

Study, work, volunteering, projects you will have many opportunities to develop these skills and demonstrate competence

- Be solution focussed
- Put yourself in other's shoes
- Respect other's opinion
- Compromise – win-win

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Safe Work Practices

OHS&W is now Workplace Health and Safety (WHS)

1 January 2013 Workplace Health and Safety Act 2012 was introduced

Offences and Penalties

Category 1	• Corporations $3M • Officers $600K/5 years • Workers $300K/5 years	intentional/ reckless indifference
Category 2	• Corporations $1.5M • Officers $300K • Workers $150K	compliance failure exposing risk death/injury
Category 3	• Corporations $500K • Officers $100K • Workers $50K	compliance failure

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Safety is taken seriously

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Be Safe

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Ethical

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There is more

- Flexibility / Adaptability
- Multicultural Sensitivity / Awareness
- Empathy
- Global Citizen
- Positive attitude
- Influencing
- Networking
- Interpersonal skills
- **IQ, EQ, CQ! Intellectual, emotional & cultural**

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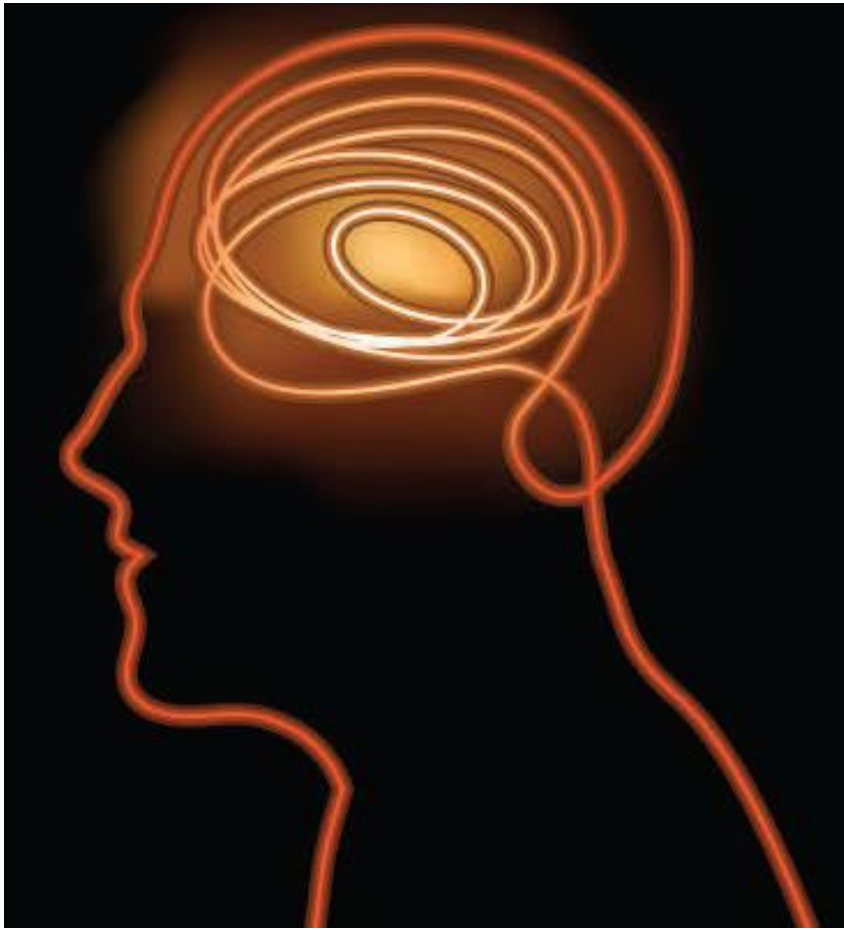
Effective EQ

Communicate effectively by focusing on body language, face and vocal cues

Recognise emotional triggers in yourself and others

Ensure you are able to manage your emotions, even in stressful situations with difficult people



People with higher EQ make better decisions!

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Great leaders have high EQ

The best leaders in life are smart, articulate and able to convey their messages clearly and concisely.

They inspire people and drive productivity.

Think Oprah, think Steve Jobs (RIP).

These are people that read, understood and accepted people and knew how to get the best out of them. These were people that had high emotional intelligence.

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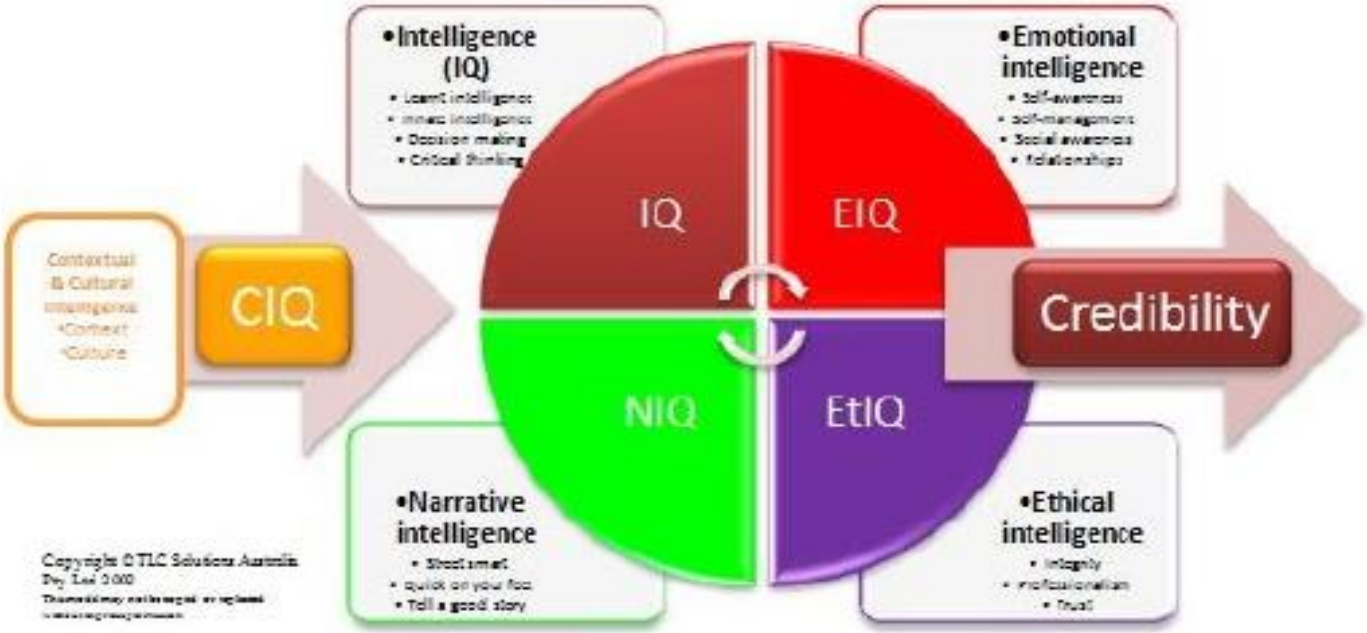
Whole package

IQ + EQ + NQ + EtQ + CQ = SUCCESS



Anyone can be a Great Leader!!

Great Leadership is the conscious and mindful deliberate practice of behaviours reflecting the knowledge and skills across the five dimensions of the 5-Dimensional Model of Sustainable Leadership.

Gregory Bayne
Director – Total Leader and Coach Solutions

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Graduate Position

Job Description

Energy Generation Graduate Program - Future TECHNICAL Leader - 0007U5

"Energy Generation" FUTURE TECHNICAL EXPERT class of 2014!!

We are currently recruiting for our 2014 Energy Generation Future Technical Expert Program Graduate Program.

What to expect from day one

The Energy Generation Future Technical Expert Program includes a structured induction, networking opportunities with technical experts, career planning and individual & team training. You will be given a chance to grow through a variety of training and projects to deepen your technical expertise over a period of two years. From day 1 you are a valued member of the Schneider Electric team and are given real work on real technical issues.

Development

You will follow a development programme especially designed to support you and begin to deepen your technical competencies in your business area at this early stage in your career. In addition, valuable competencies such as communication, presentation, teamwork, influencing, cross-cultural sensitivity, problem solving and analysis, and critical decision making are a really important foundation to your success as a technical expert in Schneider Electric. The programme is focused on developing both your technical and soft skills capabilities through classroom and on line learning, workshops as well as real job experiences in your business unit.

Mentoring

We understand that working for a large company can be a little daunting, which is why we match you with a mentor for your 2 year journey. Your mentor is an experienced senior manager or technical expert from Schneider. They are there to help you build your internal network of people and act as a confidential supporter and adviser throughout your 2 year program.

Who we are looking for?

We are recruiting graduates for our fastest growing business areas and as such we are looking to recruit within the following disciplines:

Engineering:

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Graduate Position

We understand that working for a large company can be a little daunting, which is why we match you with a mentor for your 2 year journey. Your mentor is an experienced senior manager or technical expert from Schneider. They are there to help you build your internal network of people and act as a confidential supporter and adviser throughout your 2 year program.

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Engineering:

- Electrical
- Electronics
- Mechanical
- Computer Science - software
- Chemical
- Mechatronics

Firstly you will have a strong interest in the field of energy efficiency and a passion for the environment and creating a sustainable future. You will also be a high performer whom thrives on variety, and demonstrates a passion for technology (perhaps like many of our technical team members you have had a long history of seeking to understand how things work by taking things apart and putting them together again!), good communication and problem solving skills and a curious mind with an insatiable hunger for understanding and applying new technologies.

While you are keen to know more about emerging technologies, you are sensitive to the needs of others and enjoy working with all types of people and cultures. It's necessary that you are fluent in English and are a permanent resident of Australia. Lastly, and perhaps most importantly, our Graduate Program requires working nationally and possibly globally, so domestic and international mobility are essential.
Be part of the future! Be part of our Energy Generation!

https://schneiderele.taleo.net/careersection/2/jobdetail.ftl?job=0007U5&lang=en&media_id=32890&src=Seek

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C.A.R.

Circumstance	**What was the situation / background to the Achievement?**
Action	**What did you personally do to resolve the problem?**
Results	**What were the outcomes and benefits to the organisation, client, colleague etc.?**

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Practice S.T.A.R.-L. Responses to Behavioural Questions Before the Interview

Question/ Behaviour	S = Situation When I was at … in (date) …	T = Task Problem or challenge was …	A = Action The action I took was …	R = Result As a result, I …	L = Learned What I learnt was …
"Tell me a time when you had to work under pressure to get a task completed on time"					
"Tell me about how you have worked effectively in a team"					

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Highlighting

Provides insight into your capabilities where you have added value.

- ***Improved quality***
- ***Increased sales***
- ***Reduced costs***
- ***Increased profits***
- ***Improved employee relations***
- ***Surpassed established standards***
- ***Improved productivity and teamwork***
- ***Reduced time of operation***
- ***Achieved a technological breakthrough***
- ***Established an administrative process***
- ***Planned a program from inception***

Can be as a result of paid or unpaid work situation; volunteering, university or community activities.

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Attention to detail

NO Text Message type abbreviations

NO grammar or spelling mistakes!!!

Run a spell check to pick up any errors - a big mistake that is easy to avoid!

Be error free

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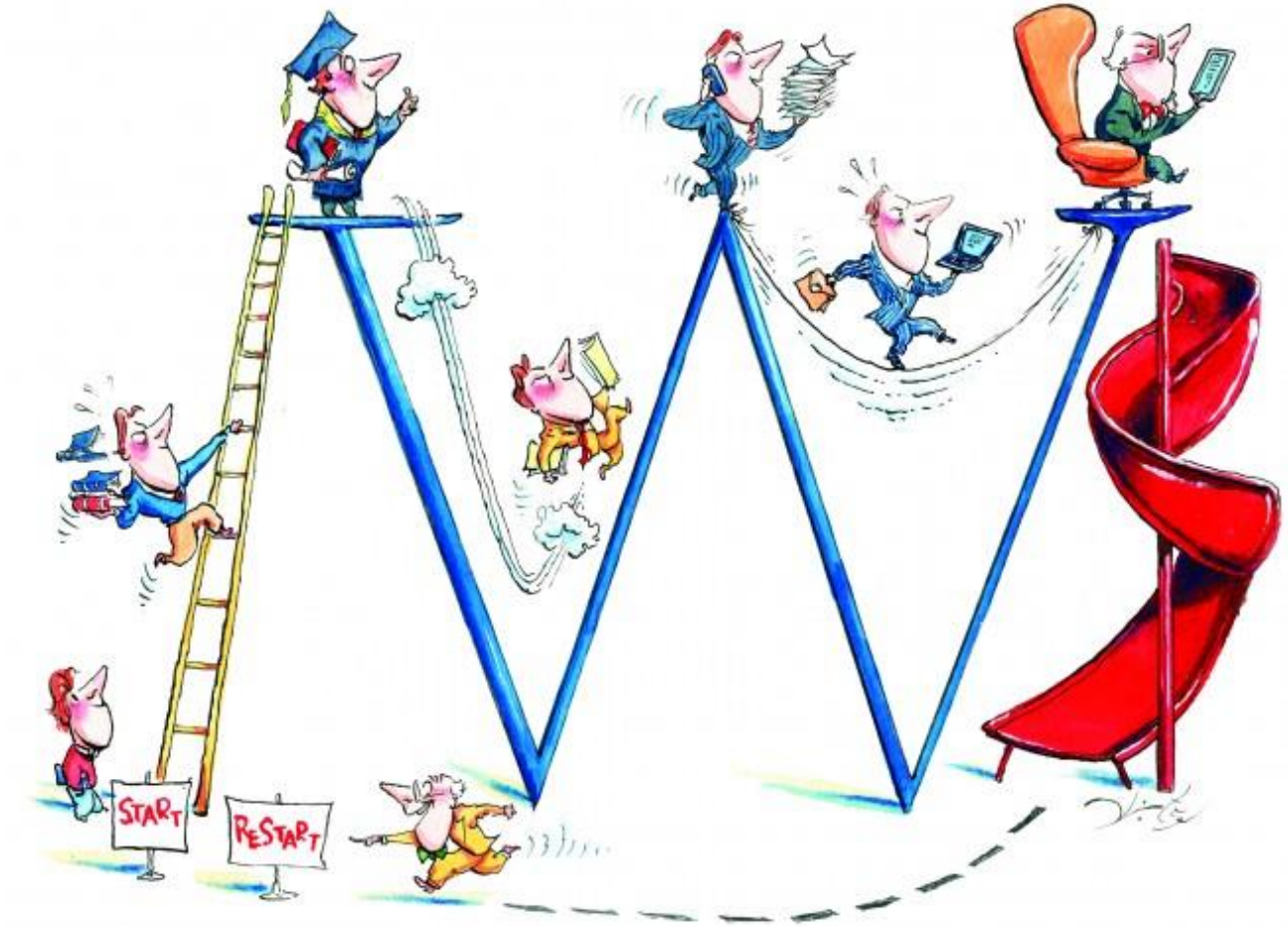
Lifelong Learning



The whole of life is learning therefore education can have no ending' Eduard Lindeman 1926

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Project Skills

Engineering is very project based

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Always review - Reflect

After every project or job you always reflect back on what you did well and what could be improved

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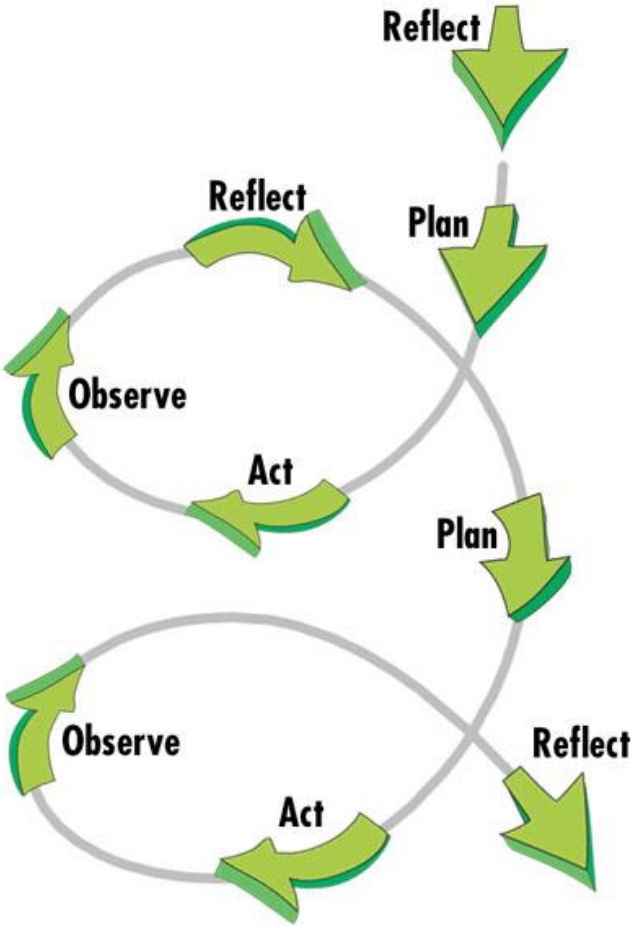
Reflective Practice



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Thank you

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