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## ‘A good engineer likes to be challenged’: Mentor’s tough assignments sharpen skills of next generation

Crucial technical knowledge to safeguard the nation’s power grid is passed down under a mentorship programme by SP Group



SP Group's mentorship programme allows engineering veterans such as Mr Chua Khim Mong (top) to share their wealth of knowledge with the next generation of talent like Mr Chung Der Chyuan. PHOTO: SP GROUP

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On any given day, Mr Chua Khim Mong would pose a hypothetical engineering problem in a group chat, challenging his team of technical officers and technicians to solve it. Mr Chua also leads weekly learning sessions and routinely assigns reading lists. No, Mr Chua is not a teacher – the 57-year-old is a senior principal engineer at SP Group.

While his day job is to make sure Singapore's national grid runs efficiently and seamlessly, he is also known as a no-nonsense mentor with close to 40 years of experience in the field.

Mr Chung Der Chyuan, a principal engineer with SP Group and one of Mr Chua's mentees, says that he has benefitted from the mentorship programme. "Mr Chua is very approachable and straightforward. He will explain his view and then let me figure out the details while keeping a watchful eye," he shares.

Today, both mentor and mentee collaborate to share their knowledge with colleagues, such as writing articles as part of a technical experts forum.

### Unseen heroes who pre-empt problems

Mr Chua and his team are known as protection engineers and play an essential part in keeping Singapore's lights on. Thanks to their work of monitoring and troubleshooting over 12,000 substations and 28,000 kilometres of electricity cables located across the island, Singapore's ubiquitous power grid is world-leading in its reliability.

While SP Group has monitoring equipment and technology that automatically adjust and reroute power across the grid to address anomalies, engineers remain crucial in fine-tuning systems and analysing faults.

"With more than 50,000 protective relays, we look out for problems that can occur when there are firmware or hardware revisions in the relay equipment," explains Mr Chua.

Maintaining such a complex yet well-functioning national grid is no small feat, requiring depth and breadth in engineering knowledge and skills. To ensure such know-how, accumulated through decades of experience, is preserved and passed down to the younger engineers, SP Group has implemented the Technical Expert Scheme, which is an in-house mentorship programme designed to ensure the continuity of in-depth industry knowledge.

### A "living manual" with 40 years of experience

Mr Chua first joined the Public Utilities Board, the precursor to SP Group, nearly four decades ago when he was 19 years old. Starting out as an assistant technician, he helped engineers who were more senior than him carry out relay testing and maintenance. Having risen through the ranks from a technician to a senior engineer, Mr Chua is well-placed to mentor his junior team members, guiding them through difficult situations they may face in the course of their work.

"When I was a junior technician, our manager assigned a senior engineer to share with me and explain protection systems: the characteristics of a good protection system and how to set up relays. The presentation really changed my understanding of electrical engineering."



With nearly four decades of experience under his belt, Mr Chua believes tough assignments can help his mentees stretch their capabilities and grow in their careers. PHOTO: SP GROUP

Now, Mr Chua places a similar emphasis on educating and motivating his junior colleagues. On his approach to skills upgrading, he says, “A good engineer likes to be challenged. I would give my engineers tough assignments to push them in sharpening their skills, and encourage them to keep working on solving the problem rather than walk away.”

“Many of my officers have expressed interest in pursuing a degree course. This is something that I am very, very proud of because it shows a deep culture of wanting to upgrade themselves,” shares Mr Chua, who himself completed an engineering degree under a scholarship from his organisation in 1995. This is also testimony to his efforts of encouraging a team learning culture.

To officers who want to attain additional qualifications, he reminds them, “Revise your maths because it is the hardest part of the course. After all, maths is a big part of an engineer’s job.”

Mr Chua recounts one instance where he patiently allowed a junior team member to present his findings in a sharing session even though he had already spotted a miscalculation. “Rather than correcting him at the start, I want him to learn from his mistake and share the learning with his peers.

“We remember and learn better through our mistakes,” Mr Chua explains.

Often, his mentees would come to him for advice when they encounter complex situations on the job.

“Most of the time, I already have the answer to their question. But I would send them off to come up with their proposed hypothesis and test method. This way, we can have two-way discussions and uncover new insights which can be applied in other situations,” he adds.

He would also assign engineers technical papers to read so that they keep up with the latest trends and developments, before hearing their views on potential applications.

Mr Chua pays close attention to the work of his juniors and always welcomes questions. “I tell them to never be afraid of asking seemingly silly questions. The most valuable lessons are learned from questioning and probing,” shares Mr Chua.

In the spirit of learning from one another, Mr Chua has implemented surprise tests and weekly sharing sessions. “Once a week, we are all in the office to share interesting experiences or findings. Even the simplest finding or experience can be valuable to another. Everyone can benefit, including myself, regardless of rank or age.”

“At the end of the day, the goal is to solve engineering problems more efficiently. But when possible, I will let my technical officers or engineers do things the hard way so that they get to learn more from the problem-solving process,” adds Mr Chua.

As Singapore seeks to transition to a low-carbon future and tackle climate change, Singapore’s grid will be upgraded with new technologies to provide for developments like electric vehicle charging and more extensive deployment of solar panels. Technical experts like Mr Chua are key in helping the next generation of talent to keep abreast of change and new opportunities, and hone relevant skills and expertise.

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