Transforming a dull IPC Course into an engaging board game: Taiwan Tech Industry-Academia Collaboration to Enhance Production Quality.

"How much are we betting on?"

"Deal!"

"Boss, we're betting on boba milk tea and lunchboxes."

"Alright, I'll come up with a more challenging question."

Can you imagine such a conversation happening in an IPC (Electronic Industry Quality Standards) training course?

The originally dull IPC (Electronic Industry Quality Standards) course has been innovatively transformed into an enjoyable board game.

In the conference room of New Horizons Industries, employees are playing a board game with cards and chips. The game was developed as a result of a collaborative effort between the company's chairman, Yong-Rui Chen, and Professor Hui-Ze Hou from Taiwan Tech. It is designed to supplement IPC training courses and convert the dull course about quality standards into an interactive game resembling "Texas Hold'em." The game offers various gameplay options accommodating different numbers of players and difficulty levels, enabling participants to showcase their familiarity with diverse domains. The game has been fully developed and tested internally, and it is expected to incorporate this game into instructional sessions in the

near future.

The collaboration between Taiwan Tech EDBA doctoral program student, Chairman of New Horizons Industries, Yong-Rui Chen, and Professor Hui-Ze Hou's team from Taiwan Tech has transformed production quality standards into a board game.

Yong-Rui Chen, a PhD student in the Taiwan Tech EDBA (Executive Doctor of Business Administration) program and Chairman of New Horizons Industries, values continuous learning and breakthroughs. Seeking to keep up with the trends of the times, he has led his company through digital transformation and green initiatives, achieving remarkable results. During his studies at Taiwan Tech, Yong-Rui Chen recognized the diverse presence of international students and colleagues and envisioned more industry-academia collaborations with Taiwan Tech to enhance the international perspective of his company. Whether it involves developing board games that contribute to organizational functioning or collaborating on software development, Chen envisions the school taking charge of innovation and challenges, followed by company-wide validation. He believes that operating in different environments and speaking different languages can bring more stimulation to the industry, creating a synergistic effect.

Yong-Rui Chen reflects on the rapid advancements in technology over the past two decades, from large-scale mainframes to the cloud, from early PDAs (Personal Digital Assistants) to the era of AI. While these technological advancements have made life

and work more convenient, they have also increased the complexity and volume of knowledge that businesses need to acquire. Embracing the idea of continuous learning and progress, Yong-Rui Chen pursued a Master's degree in EMBA at National Taiwan University and then embarked on his EDBA doctoral degree at Taiwan Tech. During this journey, he discovered the potential of board games beyond "Monopoly" and realized they could be applied in enterprise management. This led him to collaborate with Professor Hui-Ze Hou, who is dedicated to promoting "gamified learning," transforming the learning approach of IPC training courses.

Chen Yongrui, Chairman of New Horizons Industries and a doctoral candidate in the EDBA (Executive Doctor of Business Administration) program at Taiwan Tech, introduced a board game developed in collaboration with Taiwan Tech to the company's employees.

IPC (Institute of Printed Circuits) is an internationally recognized set of quality standards for electronic assembly, with over 5,000 member companies worldwide. Yong-Rui Chen encountered these standards in 2012 when his company faced quality management issues. After studying and adopting these international standards, he has been promoting IPC in Taiwan for the past five to six years.

Yong-Rui Chen explained that the IPC training course spans three days, followed by a certification exam. However, the manuals and regulations associated with IPC can be dull and difficult to comprehend. Furthermore, participants have limited exposure to

real production line scenarios, resulting in a reliance on rote memorization. To address these challenges, Chen designed a board game incorporating actual production line photographs. His aim was to familiarize the participants with differentiating between acceptable and defective products across three classes: Class 1 (consumer products like mobile phones), Class 2 (server-related products with stricter standards), and Class 3 (military and medical products with the highest level of requirements).

Guo-Ying Yang, General Manager, emphasized the game's unique integration of production scenarios and visual elements, facilitating a dynamic and accelerated learning experience compared to traditional paper-based methods. Additionally, this approach allows management to identify areas where employees may require additional training and develop specialized courses accordingly to address those needs. Ting-Kai Zhou, the Materials Manager, expressed that as a member of the internal department, they may not be as familiar with the production line. However, through this game, they can easily grasp the causes of production line quality issues.

Guo-Ying Yang, General Manager (right), believes integrating production scenarios with a gamified format creates a more dynamic and engaging learning experience than traditional paper-based methods.

Taiwan Tech is renowned for its profound research and industrial capabilities, with its graduates consistently ranking among the top preferences for employers. The

outstanding performance and widespread recognition received by its alumni across various sectors affirm the university's excellence. Founded in 1990, New Horizons Industries primarily specializes in wire processing, with its products applied in industrial computers, AI wiring for automotive lenses, medical equipment, and more. Chairman Yong-Rui Chen, concurrently pursuing a doctoral degree in the EDBA program at Taiwan Tech, brings his information technology background to the company. In recent years, the company has made significant strides in promoting a zero-carbon footprint, such as replacing traditional lighting with LED, resulting in a 10.3% reduction in power consumption annually. Additionally, New Horizons Industries has implemented green supply chain practices, offering guidance to upstream companies on carbon assessment and reduction, and sharing courses and learning materials. Through the company's collaboration with Taiwan Tech, they aim to complement each other and contribute to the sustainable development of the industry.

In addition to spearheading digital and green transformation efforts, Chairman Yong-Rui Chen continuously introduces new initiatives within New Horizons Industries, embracing a culture of experimentation and innovation.