

Editorial

Over the past months, resilience has grown in significance as we keep striving to bring out our best in the face of all the current challenges. As we began a new academic year last September, we also began adapting to a change of paradigms. In the PDEng program we have continued to move forward, driven by a spirit of creativity and innovation. In this edition of our newsletter, we offer but a glimpse of the results of continued effort. These achievements are to be acknowledged and considered in our reflections as we remain steadfast in our individual and collective goals.



GDP — Succeeding in Times of Adversity: Optimism and Dedication



The group design project (GDP) is a cornerstone of the PDEng program and a valuable learning opportunity, aiding PDEng trainees in further refining their soft and technical skills, which are essential for the realization of an engineering design project. Carmen Martinez, Margherita Rolandi, Sandy Pantou and Anlly Espinosa kindly shared their experience obtained while conducting their GDP titled *Process Design of Hydrogen-based Shipping Fuel Systems* during the past trying months of March through September.

Their project, linked to the Solid Hydro.Re.Gen consortium initiative, was presented on 17 September—via a webinar, opportunity developed in collaboration with DIDEA’s promotional committee—opening the Season 2 of the Hub Series *Clean Hydrogen organized by Enlit Europe*. On this event, Carmen conveyed, on behalf of her team, an overview of the design challenges posed by the generation of hydrogen-based shipping fuel system alternatives. Moreover, her presentation reflected the complexity of generating clean fuel concepts by incorporating multiple design levels into their project. She provided an interesting outline of the numerous factors involved in the development and selection of a feasible design for hydrogen-based energy carriers.

This versatile group design project team spoke to us about their project and our fruitful talk led to a deeper understanding of the challenges they faced during their project, such as management of large amounts of information in a field where they had limited collective experience, as well as completely carrying out their work through online collaboration, and harmonizing the project environment and the needs resulting from its multiple stakeholders. Overall, we would like to highlight this GDP as a successful example where Carmen, Margherita, Sandy and Anlly were able—through their organization skills, creativity, perseverance and optimism—to contribute to the field of clean energy and maritime shipping systems.

IDP — Outstanding Challenges and the Required Skills to Surpass Them

The individual design project (IDP) is the keystone of all PDEng programs; this 1-year project has four principal milestones: kick-off, basis of design (BoD), an intermediate progress meeting and a final presentation of results. Therewith, it exposes PDEng trainees to a dynamic industrial environment and helps crystallize the knowledge and many of the skills necessary for a successful industrial career centered in design and innovation. Among these skills, the capacity of handling a dynamic environment, where major meetings take place with project stakeholders, including industrial and academic supervisors and experts.

These important aspects, and the continuous-learning atmosphere of IDPs, were made evident by Peter Awad—PDEng Trainee in the Process and Equipment Design program—who kindly agreed to share his experience at Shell Amsterdam (STCA) in his IDP project: *Sorbent Kinetic Studies for Solid Sorbent CO₂ Capture Technology*, dealing with the desorption kinetics of the solid sorbent. His project, in line with the increasing global efforts in terms of sustainability and the establishment of a circular economy, has presented Peter with many singular challenges, being this a new technical field for him.

Peter began his project in February 2020, and shortly after—he, as we all—had to adapt to the new circumstances brought about by the Covid-19 pandemic. Taking advantage of his rich interdisciplinary experience in diverse environments, Peter has been able to accommodate this change. In spite of the shifting circumstances, he conveyed that knowledge acquisition has been a constant in this new field, as he dealt with reactor modeling and adsorption/desorption kinetics of CO₂ abatement strategies.

With that in hand, Peter emphasizes above all, the importance that soft skills had for him in facing some of the main hurdles of his project: scope reshaping, and harmonizing the views and needs of multiple stakeholders in a large company. His own keen reflection allowed him to pinpoint that flexibility and communication skills have been fundamental in moving forward with his project. All in all, staying organized, and keeping certain days without meetings to improve his focus while asking for guidance have been key for Peter in successfully facing all the challenges along the way. We were delighted to receive this advice from Peter, and we wish him the best success for the remainder of his IDP and his future career.

Ice-breaking Event

Last September, on the eve of the new academic year, DIDEA held an *Ice-breaking Event* to welcome the trainees joining the different PDEng programs at TU Delft. During this hybrid event, trainees from the February intake and the new arrivals had the opportunity to meet each other and *break the ice*: first with a few online activities before participating in a corona-proof, city-wide treasure hunt in Delft, allowing the PDEng trainees to cycle around the city, and discover the city on their own, and part of its rich cultural heritage guided by riddles and clues: its famous blue pottery, its modern railway station, the traditional *de Roos* windmill, the historic *Diamond Ring* bakery and the *Vermeer Center*, homage to the *Master of Light*: Johannes Vermeer.

Game Nights

Resilience has been essential for all to cope with the challenges we face as part of the coronavirus pandemic. In this regard, staying connected and in communication has taken a yet more significant role in everyday life. DIDEA, and in particular DIDEA's Social Committee, have been hard at work to provide opportunities for members of the PDEng programs to interact and share moments of fun and respite through the *Game Nights*. These events have provided a safe and responsible alternative to socializing—this, in a casual setting, full of different challenging and engaging activities: online games, quizzes and contests, among others. So keep your eyes peeled for upcoming social events; you are always welcome to join and share a heartfelt laugh and a good time with your colleagues.

Worley Design Competition

During the months of September and October of 2020, Worley—a global provider of professional project and asset services in the energy, chemicals and resources sectors—sponsored a design competition for students from Dutch technical universities. The design challenge posed for the competition was to determine and evaluate an economically attractive case for Carbon Capture & Utilization (CCU). This, in reference to a Carbon Capture & Storage (CCS) scenario—wherein carbon dioxide is stored underground in caverns and dry aquifers. Several teams, composed of Master students and PDEng trainees, competed in the finals on 28 October 2020. The competition, comprising two phases, involved a first stage requiring the compilation of a report, followed by a presentation, the second and final stage. The deliberating jury that evaluated the designs consisted of senior engineering and business development executives from across the world.



DIDEA congratulates the team *Carbon (Opportunities)*₂, composed of Carmen Martinez Tauler, Anlly Espinosa Cardona, Ada Hlebowicz, Jeremy Mantingh and Themis Neokosmidis from the PDEng September 2019 batch, who secured the first place. Similarly, congratulations to the runner-up team: *Innovative Designers* from TU/e, and the best acknowledgements to the teams *Diaphragm*, *TweeTU* and *Dynamic Energy* for driving the competition forward with their participation and remarkable efforts put throughout their designs. (For more details, we recommend visiting: worley.com/competition.)

Present-Day Well-Being

On 22 September, the BT Annual Symposium featured a talk titled *Staying Well*. Currently, the extent to which the online working context challenges us may yet be uncertain; however, the present circumstances have revealed just how essential social interaction is. How can one then cope with the lack thereof?

During the aforementioned talk, delivered by Hugh Kearns, he predominantly went over a number of strategies for working productively. These ranged from arguably simple, straightforward practices like reducing distractions; setting both realistic and overreach goals to nudge performance; and recursively breaking down seemingly gargantuan projects into an array of *nano-sized* tasks that can be carried out effortlessly when done in succession; all the way up to analyzing our own control, influence, and out-of-own-control regions and therewith letting go of the need to control the ineluctable.

All the previous approaches may not directly hint towards coping with the lack of socialization, but few people would refute that performing efficiently at work can release time from our schedule and leave breathing room to actively handle our personal well-being. In this regard, besides keeping in communication with the people within our social circle, Hugh Kearns suggested engaging in *creative pastimes* and *sports* for promoting not only our well-being, but to increase our productivity. So do engage in active rest by safely doing something you enjoy, turning your *to-do list* your *done list*!