

digest

January - April 2019 Issue



Munich: A Home Away From Home
p.6-11



The Chemistry Of Paint
p. 12



Classroom Theories, Real-Life Solutions
p. 14

CONTENTS

IN THIS ISSUE

- 03 Director's Message
- 04 Emerging Trends Of The Industry
- 06 Munich: A Home Away From Home
- 12 The Chemistry of Paint
- 14 Classroom Theories, Real Life Solutions
- 16 Engineering Meets Technology
- 18 The Chatter



EMERGING TRENDS OF THE INDUSTRY

Four professors share insights on the latest trends and challenges in the aerospace, chemical, electrical engineering and logistics and supply chain industries



MUNICH: A HOME AWAY FROM HOME

Our final-year Bachelor students share their experience on living abroad and completing their thesis in Munich, Germany



ENGINEERING MEETS TECHNOLOGY

An alumna of TUM Asia shares how her knowledge in engineering and technology helps her to solve problems at work

ON THE COVER

- Munich: A Home Away From Home - Tan Jun Wen (Photo 1)
- The Chemistry Of Paint - Pexels (Photo 2)
- Classroom Theories, Real Life Solutions - Yong Kia Photography (Photo 3)

This newsletter is published by:

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CPE Registration No. 200105229R (13/06/2017 - 12/06/2023)
German Institute of Science & Technology – TUM Asia Pte Ltd

director's message



Frohes neues Jahr and warm greetings to all our readers!

Every new year comes with renewed anticipation for the future. As engineers and industry players, we live in the exciting age of Industry 4.0. At TUM Asia, we are constantly moving to provide an industry-relevant education that is time and trend-sensitive. On top of building a strong theoretical foundation, our unique pedagogy includes an adamant emphasis on global exposure and industrial application.

To kickstart the year, we gathered some insights from a few of our German professors regarding their take on the prospects and future of various industries. These professors have accumulated years of experience in the various industries before starting their academic careers. To glean from their experience and perspectives, turn to page 4.

Every year in September, our final-year Bachelor students travel halfway across the globe to spend a semester at the home campus in Munich, Germany for the Overseas Immersion Programme (OIP). While having to complete their Bachelor Thesis, these students are placed in a new environment to immerse in the German culture; to live and learn on their own in a foreign country; and to expand their horizons by trying new things. Meet six of our students

who are currently in Munich and hear firsthand how the experience has been for them from page 6 to 11.

To aid our students in gaining hands on practical knowledge on various industrial practices, TUM Asia organizes frequent industrial visits in partnership with various industry partners. Two cohorts of our Electrical Engineering and Information Technology (EIT) Bachelor students had to opportunity to visit Rohde & Schwarz, both in Singapore and in Munich to learn more about their industrial processes. To read more, turn to page 14.

The DIGEST team also caught up with two of our Bachelor alumni students who have moved on to pave their career paths. Preethi Vishnumahanti, alumnus from the pioneer cohort of the Electrical Engineering and Information Technology programme, is now a System Manager at a startup technology company; and Goh Zhe Liang, who graduated from the Chemical Engineering programme in 2014, has been working as a Research Scientist in the paint and coating industry since his graduation. To hear more about their career stories, turn to pages 12 and 16 respectively.

With this, I would like to wish all our readers a successful and fruitful 2019 ahead. May you have an enjoyable read.

Yours Sincerely,

Dr. Markus Wächter
Managing Director, TUM Asia



Prof. Stephan A. Sieber
Chair of Organic Chemistry II
Faculty of Chemistry
Technical University of Munich
(TUM)

CHEMICAL INDUSTRY

Education at TUM involves current knowledge of applied sciences with strong ties to industrial application. TUM has an outstanding tradition of growing creative scientists across many disciplines of study. In organic chemistry, groundbreaking discoveries on the synthesis of heme by the Nobel laureate Hans Fischer triggered a modern field of bioorganic chemistry. This topic is highly important to the discovery of modern medicine and combines several state-of-the-art technologies such as chemical synthesis and analytical tools. Our teaching highlights some of the most important topics in today's chemical research. Overall, our aim is to facilitate examples on how modern organic chemistry is used in industrial applications.

ELECTRICAL ENGINEERING INDUSTRY

Today, the electronics industry faces both economic and technical challenges at the same time. Electronics are the foundation of modern, advanced societies, driving everything from consumer devices to complex industrial plants and our advanced infrastructure. **Electronics are growing stronger than the overall economy and will become even more essential as we are moving into an all-connected world, such as with the introduction of autonomous vehicles.** While electronics are essential for a more environmental-friendly and sustainable world, they are not getting as much technological push from "Moore's Law" as compared to the past. Therefore, improvements in the design of electronics (primarily Integrated Circuits) are even more important to advance the state of the art in electronics than ever before.



Prof. Ulf Schlichtmann
Chair of Electronic Design
Automation
Department of Electrical and
Computer Engineering
Technical University of Munich
(TUM)

In the age of Industry 4.0, digital transformation has made it possible for humans, machines and factories to be interconnected all around the world. Industry leaders and companies are evolving at the same pace of the trends they embrace.

Hear from our professors on the emerging trends and challenges in the various industries that current and future engineers should pay attention to.



Prof. Manfred Hajek
Chair of Helicopter Technology
Department of Mechanical
Engineering
Technical University of Munich
(TUM)

AEROSPACE INDUSTRY

Aerospace engineering has always been driven by three major factors; safety, weight and efficiency. Safety is a top-level design target that cannot be compromised. Weight and efficiency are key to more affordable operations. Consequently, low weight, low aerodynamic drag and more efficient engines have been core research topics for decades. However, future trends in aerospace engineering will include environmental concerns and incorporate advanced technologies. Flying in an autonomous air vehicle, which uses battery power to fly, may still be decades away from realization. **But getting there will require a generation of the best educated aerospace engineers who are trained beyond traditional profiles in order to be able to match future employment needs.**

LOGISTICS & SUPPLY CHAIN INDUSTRY

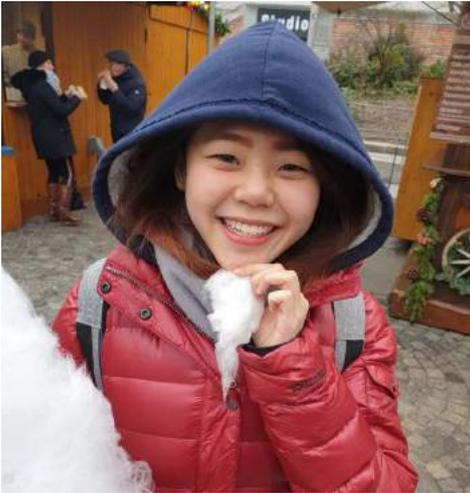
Digital transformation, changing customer behavior and an increasing focus on sustainability are modern factors that affect the logistics and supply chain industry. **Traditional business models and processes are undergoing change and innovation, requiring more data-driven decisions that include automation and artificial intelligence.** This change requires the sharing of resources using advanced optimization and using new technologies and organizational concepts, such as the internet of things. It is therefore crucial to be equipped with an academic qualification to understand and shape a data-driven logistics world. Our graduates have the unique opportunity to combine technology expertise, optimization knowledge and management skills to become an active game changer in this age.



Prof. Stefan Minner
Chair of Logistics and Supply
Chain Management
TUM School of Management
Technical University of Munich
(TUM)

STUDENT FEATURE

Munich: A Home Away From Home



▲ **Joey Neo Zu'er**
Bachelor of Science in
Electrical Engineering &
Information Technology

▼ **Siti Zafarah**
Bachelor of Science in
Electrical Engineering &
Information Technology



◀ **Tan Jun Wen**
Bachelor of Science in
Chemical Engineering

▼ **Muhammad Fareez
Bin Rahim**
Bachelor of Science in
Chemical Engineering



▶ **Andriana**
Bachelor of Science in
Chemical Engineering



◀ **Ng Kai Xuan**
Bachelor of Science in
Electrical Engineering &
Information Technology

The Overseas Immersion Programme (OIP) is a highlight for most TUM Asia final-year undergraduates. Students spend three to five months at the home campus in Munich, Germany, taking in many new experiences while completing their Bachelor Thesis. In this issue, the DIGEST team catches up with six Bachelor students to learn more about their time in Europe.

We are happy to hear that you are settling well in Germany! How has it been living in Munich so far, especially as compared to Singapore?

Andriana: It has been a time of adjustment since we arrived. Firstly, the weather in Munich can change drastically in a single day and so I would usually dress warmer than required and bring an umbrella along. In terms of the transportation system, there are more train lines operating in Munich as compared to back home. I particularly enjoy riding the trams as the journey is very smooth and scenic. The food here in Munich is also rather different from what we are used to in Singapore — and while it may be delicious, I do miss our local food!

Fareez: For me, the weather was great when we first arrived in October as it was not too cold and not too warm. As we approached December, the temperature began to drop and that is when we had to start layering up. Besides the weather, I have also come to appreciate our public transportation in Singapore. The train timings in Munich are not fixed and the journey between places is much longer. It took me a few weeks to adjust to the different train system.

Joey: Germany has been great! It was cold throughout the semester, but I am not complaining, because I love the cool weather, especially when you do not get this in Singapore. You will definitely need some heat packs when it gets very cold and breezy.

Jun Wen: I have noticed similarities and differences between Munich and Singapore. Munich is a modern city like Singapore, with a reliable public transportation system and with most people being able to converse in English. The supermarkets are well-stocked with a wide range of items available. A meal costs around 4 to 10 Euro (6 to 16 SGD) when you eat out but a simple home-cooked meal costs around 2 to 4 Euro (3 to 6 SGD). I had to get used

to cooking my own meals, but it has been fun trying out different recipes.

Kai Xuan: When I first got to Munich, I had to adjust to navigating around an unfamiliar city. I took some time to explore the city and to familiarise myself with my new work place and school environment. Besides that, I have met many new people and grew to adapt to the culture and food.

Zafarah: Settling down in Munich was a whole new experience for me as I have never been to Europe. One difference was to adjust to the food preferences. In Germany, majority of the halal food available is limited to the kebab and fries. But I have learnt to appreciate the variety of vegan products available in the supermarkets. Another difference that I am learning is that the days in winter are shorter and it usually turns to night time by five in the evening.

Describe how a typical day in Munich looks like for you.

Andriana: Lessons in TUM typically start at 9am. After breakfast at home, I head to my nearest U-Bahn train station and travel towards the main campus at Theresienstraße for German language class, or to the Garching campus for laboratory sessions. Lunch time in the campus is spent at the Mensa, which is the school canteen. The canteen typically serves a German-style meal with or without meat. After school, I usually head home to rest and cook my dinner. On weekends, my housemates and I take day trips to nearby towns in Germany or even venture further to neighbouring countries such as Austria.

Fareez: In the morning, I usually go for a jog around my estate and that is when I will bump into friendly locals. Given the very short days during winter, where the sun sets at five in the evening, my roommates and I enjoy going for day trips and hikes up the Bavarian alps to catch the sunset. We spend some of our nights camping at the summit to fully experience the nature elements of Europe.



TUM's Garching Campus (Photo: Jun Wen)

Zafarah: I stay with a German family – a couple and their five-year-old son. They have been very friendly and warm towards me and I often have meals with them. On days I do not need to be in school, I would stay in to spend time with the family or play with their son. I realise one thing different about them as compared to families in Singapore is that they do not use gadgets too often. They prefer to do things together such as playing football, baking or going for a stroll in the park. Time with the family has made up a main part of my time in Munich aside from school.



Zafarah spending time with her host family in Munich

Is there anything about the German culture and lifestyle that stood out to you?

Andriana: I have noticed that the Germans value work-life balance. On Sundays, most of the shops are closed, including supermarkets, pharmacies and shopping malls. Germany is also environmentally friendly, as we are required to bring our own shopping bags when buying anything from shops. The most interesting encounter so far, is that the escalators in train stations are energy-saving, meaning that they would halt when no one is using them, and they are also bi-directional, as it runs up or down depending on which side you are taking it from.

Fareez: I find the locals very accommodating towards others, though reserved at first. They are also innovative when it comes to work, as they enjoy giving presentations in a more comical and visual way. Their lifestyle perfectly embodies the “work hard, play hard” style, where they can work from dawn till dusk and yet have beers during work meetings.

Joey: I like how the locals are very considerate towards people around them. The men are more gentlemanly and they do give way to the ladies. Another interesting fact is that most shops close at eight at night and completely on Sundays, but the public transport runs everyday and through the night.

Jun Wen: I learnt that saying hello to a stranger on the street while walking past each other is common here. Eating and drinking are allowed on public transport, and so are dogs. The supermarkets do not provide

plastic bags, and so you have to bring your own bag to grocery shop – I wish Singapore would adopt this practice too. Also, when you buy drinks that come in cans, plastic bottles or glass bottles, you will have to pay a deposit that will be returned to you when you return the bottles for recycling.

Kai Xuan: I realise that the Germans really love their local beer, and they are proud of their local football team. To me, the most impressive aspect of their culture is ‘punctuality’. The buses and trains come right on time and so do the people.

What would be your most memorable experience so far?

Andriana: It would be the experience of the European culture and lifestyle. I had a lot of fun during Oktoberfest and during the Christmas season as Christmas markets are abundant across Europe. It has also been a new experience for me to travel around Europe and to ride their regional trains, especially the overnight ones. Navigating and planning routes with my friends has definitely given me a sense of achievement! Aside from that, the historical sites, scenic nature and fascinating museums are a breath of fresh air compared what we are used to back in Singapore.

Joey: The most memorable experience for me thus far is to witness my first ever snowfall in Munich! It made me look back on the past two years of hard work in university and feel that it was all worth it to make it here.

Jun Wen: Coming to Germany in September to October, my classmates and I experienced the Oktoberfest, which is a rare opportunity. But what I truly enjoyed was to go hiking in the mountains - something that cannot be done in Singapore. Munich is surrounded by a mountainous region, including the Bavarian alps, and the view is simply stunning at an elevated height. I have been on two hiking trips - Eckbauer (1237m high) and Jochberg (1565m). The hike is tiring but upon reaching the peak, the view makes it all worthwhile.

Kai Xuan: My most memorable experience is to have experienced Munich’s biggest event of the year, the Oktoberfest. The event was held on the final Saturday of September to the first Sunday of October every year. My friends and I enjoyed the relaxed and friendly atmosphere, where strangers invited everyone else to cheer and. Also, it was my first time getting drunk in the afternoon!



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Tan Jun Wen



A photo taken by Jun Wen during a hiking trip to Jochberg, Austria

Zafarah: For me, it would be meeting Muslim friends from Germany, Turkey and other countries. One time, the few of us gathered together to go hiking at Mittenwald. I enjoyed getting to learn about the diverse cultures of the people I interact with and exploring different halal food options available in Munich.

Do you find any difference between studying in Munich and studying in Singapore?

Andriana: I did find the professors and doctoral students very friendly and helpful. In our lab course in Munich, they willingly shared their experiences and they related school material to real-life industrial application. We also operated industrial scale equipment, which are definitely larger than the laboratory equipment that we were used to in Singapore. Also, as a TUM student, I was able to take German classes under TUM Sprachzentrum (Language Centre). I met many international students from all over the world that came to TUM to further their studies and was able to share our experiences with them during class - in German!

Fareez: In Germany, I noticed that the students are given a lot more autonomy in their studies and projects. It is rather eye opening as the students are very independent and seemed to study out of passion in the pursuit of knowledge rather than to get their degree. The school hallways are filled with academic posters on projects that are fully student-initiated.

Jun Wen: Personally, I did not find that there is a great difference between the learning experience in Germany and in Singapore. The German supervisors do not mind questions and they expect students to voice out their questions directly and honestly. They would only step in to give assistance when students asked questions,

“ I found the professors and doctoral students very friendly and helpful. In our lab course in Munich, they willingly shared their experiences and related school material to real-life industrial applications. ”

Andriana

otherwise, they allow the students to be independent. This is the only observation I have made so far in terms of differences in teaching styles.

Kai Xuan: I would think that the study styles in Germany and Singapore are rather similar. Students are encouraged to be independent, self-disciplined, willing to pick up new concepts and accept new challenges. For me, this is rather true in both countries' context.



Andriana (left) and her classmate at the Oktoberfest



Joey (rightmost) and her friends at Disneyland, Paris

Can you tell us more about the topic you have chosen for your bachelor thesis, and its potential impact?

Joey: Previously, I switched from my diploma in marine studies to the field of electrical engineering so that I could pursue my goal of working with underwater subsea vehicles. For my bachelor thesis, I was able to reach out to a TUM professor and have him agree to supervise my research topic of the development of the gripper of an underwater subsea vehicle.

Kai Xuan: In an inner-city scenario where roads are narrow with very close turn points, it is difficult to infer whether the front vehicle is turning or lane-keeping. For my thesis topic, I have chosen to work with autonomous vehicles and their ability to maintain safety constraints while ensuring passenger comfort. This is done through a programmed function that helps a designed controller to correctly infer another vehicle's desired turn manoeuvres. This helps to create safer road vehicles in autonomous driving.

Zafarah: My thesis is based around the photovoltaic and wind hybrid system (PV-Wind). I chose this topic because it is a potential technology that can help under-developed countries to reduce technology pollution while distributing electricity to the masses.

As you are about to come to the end of your Bachelor studies, what would be your greatest takeaway from your academic journey in TUM Asia?

Andriana: I would say that my greatest takeaway is to have gained knowledge that is industry-relevant. Lessons were always taught with real-life applications in mind. With this, I will be better prepared for the industry and would be able to contribute to the workforce in this field.

Fareez: My studies at TUM Asia taught me that hard work will eventually pay off and that time

management is key. I have also come to treasure the friendships and knowledge that I gained in my classes.

Jun Wen: I appreciate being taught by the professors and lecturers throughout this academic journey. Each of them carried a different teaching approach and some even shared with us their life's wisdom. I am also grateful for the friendships forged here.

Zafarah: I am glad for the opportunity to come to Munich and be exposed to the different cultures and lifestyles here. The OIP has taught me to work independently through my thesis-writing. Studying in TUM Asia has taught me the need to understand the concept instead of merely fact-studying.

Lastly, what is one thing you will miss about Germany when your OIP ends?

Andriana: I will definitely miss the weather in Europe and the street food in Germany! Even though I do not eat German food on a daily basis, the meat, sausages and potatoes have a unique flavour that cannot be found elsewhere. Overall, I will miss the whole experience of studying abroad.

Fareez: I will miss the weather for sure! Despite the cold, it feels like I have the air-conditioner turned on everywhere I go. The beautiful scenery will be another item I will miss once I am back in an urban concrete jungle.

Joey: I will miss the freedom of travelling, the cool weather and the slower pace of life in Munich.

Jun Wen: I will miss the beer, the pretzels and the sausages. But what I think I will really miss will be the mountains that I can spontaneously go to as and when I like to!

Kai Xuan: I will miss the amazing variety of beer that is available in Germany!

Zafarah: I will miss the times of fun I had with friends here in Munich, and the family that I am staying with since we have forged a bond with the time spent together.



Fareez and his classmates during a hike



Kai Xuan (front row, third from left) and his EEIT classmates at the Oktoberfest

“
I have also come to treasure the friendships and knowledge that I gained in my classes.”

Muhammad Fareez Bin Rahim



Zafarah and her friends exploring Mittenwald, Germany



Andriana (second from the right) and her friends at Marienplatz, Munich

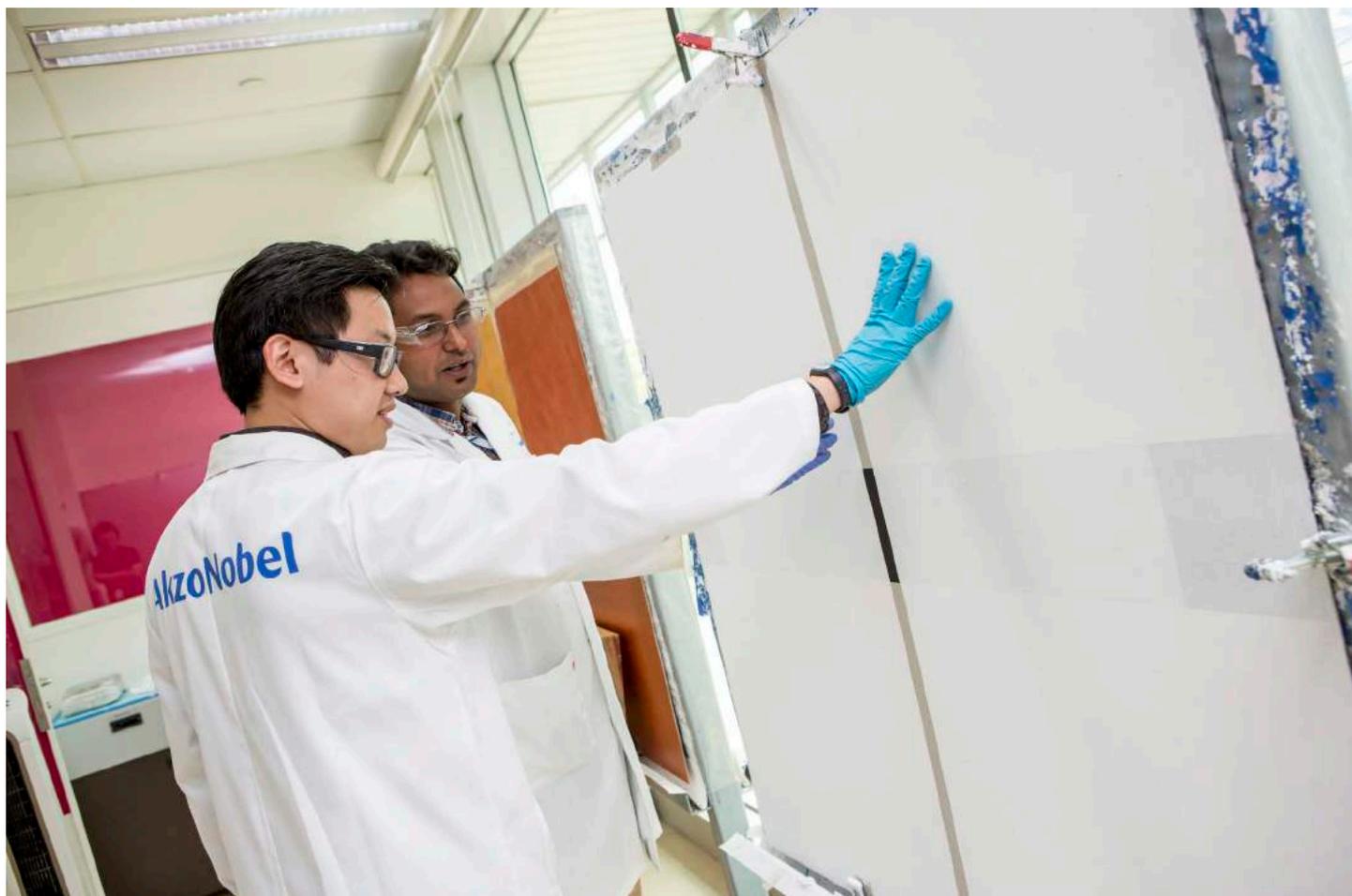
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Siti Zafarah



Joey (second from the left) and her classmates at Nymphenburg Palace, Munich

The Chemistry of Paint



Zhe Liang (left) and his colleague reviewing a painted cement board at work

Paint is such a common part of our physical environment that people hardly stop to ponder – what is paint actually made of? With a passion for chemistry, Zhe Liang’s job involves researching, innovating and formulating different types of paint for consumers. The DIGEST team speaks with him to find out some interesting aspects of the paints and coatings industry.

Tell us more about yourself.

Hi! I am Goh Zhe Liang and I graduated from TUM Asia in 2014 with a Bachelor of Science degree in Chemical Engineering. After my graduation, I started working at AkzoNobel Paints as a Research Chemist in the Research, Development & Innovation department and have been working there ever since.

How did your interest in chemistry develop?

My interest in science was ignited upon exposure back in primary school and it grew when I was introduced to other branches of science during secondary school. I realised that physics lessons were more straightforward and have logical explanations to it, whereas chemistry was some sort of magic to me. During chemistry laboratory lessons, I have always marvelled at how some chemical reactions could take place and other reactions could not, and

that two compounds could react to give a different compound in the end. That curiosity eventually paved the way to my growing passion in chemistry and in research.

What do you think was the most valuable experience you received from your bachelor studies in TUM Asia?

There are many valuable experiences I gained during my course of study and the most valuable experience is to never cease to be curious. It was a revelation to me when I saw how some professors would not continue teaching until someone asked a question regarding what had been taught. The German professors love it when students ask questions out of critical thinking and curiosity. Curiosity also drives one to study topics outside the scope of what was taught, which in turn helps you to understand the topic in a way that suits you the best.



Zhe Liang (front, left) and his friends from TUM Asia

How has your Bachelor studies contributed to your career path?

In my line of work which deals with paints and coatings, TUM has equipped me with a very strong chemistry foundation especially in terms of organic chemistry. But I would say the greatest lesson learnt from my Bachelor studies is that pure memory work will not get you far, but it is the understanding of fundamentals coupled with adaptable thinking that will help you solve all kinds of problems. Understanding this key principle is the key to unlocking difficult research problems.

What aspects of your job do you enjoy the most?

In the paints and coatings industry, companies must be quick to respond to competition. Due to the fast-paced environment, I was able to see rapid results of my research and development being released in the market and having an impact on people's lives. When I see products that I had formulated being sold on shelves, it gives me a sense of satisfaction and achievement.

Tell us more about a memorable project you have worked on.

My first project was to migrate all the interior wall paints to a low-odour range. Besides formulating new paints with minimal smell, I came up with the idea of conducting odour assessments on smaller scales where respondents were asked to rate the odour on freshly-painted panels, instead of a fully-painted house. This reduced the need for a large space and enabled mobility for potential customers. This really helped us to complete the project well. At the end of the project, I was given an award in recognition of my efforts, and this was really memorable for me.

“
The greatest lesson learnt from my Bachelor studies is that pure memory work will not get you far, but it is the understanding of fundamentals coupled with adaptable thinking that will help you solve all kinds of problems.”

What do you think are the prospects and potential of the chemistry industry?

I think that the chemistry industry will always stay relevant as it affects our lives and is everywhere. If you think about it, paints and coatings are just one part of the chemical industry and it already covers the types of paint that you apply on walls, roads, furniture, metal signage, cars, airplanes, ships and even the coatings of home appliances. Other than paints and coatings, there are the plastics industry and the emerging and rapidly evolving green chemistry industry, which utilizes catalysis and possibly a multidisciplinary approach. The potential of the chemistry industry lies in its ever-growing size that includes many aspects from research to production, to chemicals supply and chemicals testing.

Any advice for your juniors who are interested to pursue a career in chemistry?

My advice for my juniors is to continue to be curious because education never stops. The Bachelor studies at TUM is just a stepping stone and it encompasses a wide variety of modules that are relevant to different industries - so take some time to ponder over which modules interest you the best. From there, you will be able to carve a career that will best suit your interests.

“
The potential of the chemistry industry lies in its ever-growing size that includes many aspects from research to production, to chemicals supply and chemicals testing.”



Zhe Liang (right) and his thesis supervisor from TUM

INDUSTRY VISIT

Classroom Theories, Real Life Solutions



Top: Second year Electrical Engineering & Information Technology Students at Rohde & Schwarz, Singapore
Bottom: Final-year Electrical Engineering & Information Technology Students at Rohde & Schwarz, Munich

To bridge the gap between theory and application, TUM Asia conducts yearly industry visits to provide students the experience of a working environment. These visits allow students to gain hands-on experience of how industry operations are carried out on a regular basis, and thus broadens their exposure to industry practices.

Rohde & Schwarz (R&S) is one of Germany's largest manufacturers of information and communications technology products for professional users all around the world. On 16 November 2018, the final-year Electrical Engineering and Information Technology (EEIT) students who have embarked on their Overseas Immersion Programme in Munich attended a site visit at R&S,

Munich. The students toured the office premises, with an interactive presentation to learn about the company's operations, systems and products. The R&S team also invited the students for a time of brainstorming, discussion and presentation during a Business Case Study specially prepared for them.

Back home in Singapore, the second year EEIT students also paid a visit to R&S, Singapore. Similarly, students were given a tour around the local office and were able to get insights on the internal working environment of the company. Both visits provided the students with many insights and helped them to further match what they have learnt in classroom with the practical aspects of technology.



Top 4 Photos: R&S Visit in Munich (Yong Kia Photography)
Bottom Photo: R&S Visit in Singapore (TUM Asia)

Engineering Meets Technology



Preethi (middle) with professors and classmates at her Graduation Ceremony in TUM Asia

Graduating from the Bachelor of Science in Electrical Engineering and Information Technology (EIT) programme, Preethi enjoyed a diverse educational journey across the electrical engineering and information technology industries. In this feature, she shares how having an interdisciplinary education background has benefitted her at work.

Hi Preethi, tell us more about yourself.

Hi DIGEST readers! I am Preethi, I was from the pioneer cohort of graduates in the Bachelor of Science in Electrical Engineering and Information Technology (EIT) programme. Ever since graduation, I have worked in both the information technology (IT) and the electrical engineering sectors. Currently, I am a System Manager at a technology startup company, Blue Wireless, where I lead implementation of various systems and software. I am responsible for the development and maintenance of the internal systems.

Can you share with us some of your industry experiences?

I have worked in several companies from the small and medium-sized enterprises (SMEs) to multinational corporations (MNCs) and have also seen the changes in the oil and gas industry as well as experienced the rise of the IT industry. I have worked as a Systems Engineer in my various roles,

where I monitored the systems and infrastructure to ensure the highest levels of availability and efficiency. My other professional experience includes a job role as an Electrical Engineer, working on engineering calculations and preparing electrical deliverables.

It has been a long while since graduating from TUM Asia. Is there any specific experience from your Bachelor studies that is still fresh in your memories?

I remember that at one point of my Bachelor studies, I was feeling a little overwhelmed while preparing for my final examinations, as it would determine whether I could qualify to be part of the first batch of students to go to Germany for my thesis. I studied day and night and persevered through the period, telling myself "I can do it". Thankfully, the hard work paid off! I was amongst the first few to travel to Germany to write my thesis, and eventually to graduate. Till this date, this has been a reminder to myself that persistence comes a long way and I can do anything if I put my mind to it.

Tell us more about your current job - what are some things you do as a Systems Manager?

As a Systems Manager, I oversee all decisions related to my company's use of technology. This involves software implementations such as Dynamics 365 and creating solutions and processes that best fit the company. I help to ensure the highest levels of availability and efficiency. Currently we are developing applications for internal and external use, to improve operations and customers' usage.

What do you enjoy about your job?

When people go "How did you do that!" In the IT sector, you meet people who come to you with their problems. The solution may be simple, but they are not "tech-savvy" enough to solve it by themselves. Besides that, I enjoy doing mathematics! It brings me delight and relieves stress. What more can I wish for than doing calculations full-time and getting paid to do it? Most of all I enjoy working with various departments (such as process, mechanical and design) and presenting the deliverables to clients who have invested millions of dollars.

Is there any way your Bachelor studies have contributed to your current career path?

My bachelor studies have aided me in gaining technical knowledge for my electrical deliverables. For instance, some topics I found helpful were on power systems, load flow analysis, short circuit analysis, calculating equipment sizing of generator, transformers, and uninterruptible power supply (UPS). Calculations and electrical design sure did come a long way when I worked as an electrical engineer. But more than the technical knowledge, I have also gained soft skills while studying in TUM.

“**As we are moving into technology-enabled societies, everything around us is increasingly connected and controlled by our smart devices. Both the engineering and IT sectors play a part in building a Smart Nation.**”



Preethi (front row, second from the right) with her TUM Asia professor and classmates



A photo of Preethi and her classmates with the Parabola Slide at the TUM's campus in Munich

From your industry experience, how do you think the fields of engineering and IT are interrelated?

When I was working as an electrical engineer, there was a time where I needed to customise the report according to the requirements. Since I had an IT background, I was able to use codes to customise and configure the electrical deliverables report. Otherwise, we would have engaged an external vendor to do it.

Thus, I feel that engineering and IT goes hand in hand and are interconnected, especially when we are moving into technology-enabled societies. Electrical engineering is physical, and it covers application of the laws. On the other hand, IT uses technology to process and display information that is important to engineers.

The IT industry is always evolving with new technologies and applications. How do you stay in tuned with the latest trends of the industry?

I have learnt the importance to keep up with technology. It is immensely crucial to stay hungry. Luckily for me, I enjoy learning something new all the time. I make it a point to pursue a new certification every year and I usually research on the new upcoming technologies that are relevant to my career before pursuing it.

What do you think are the prospects of EEIT graduates?

The IT sector is expected to grow even more significantly over the coming years. Technology has disrupted the industry and is starting to replace jobs. As we are moving into technology-enabled societies, everything around us is increasingly connected and controlled by our smart devices. Both the engineering and IT sectors play a part in building a Smart Nation.

The Chatter



DAAD Speaker Series

How 3D Printing is Changing the Equation of Space Research and Recyclability

On 8 November 2018, TUM Asia partnered with the German Academic Exchange Service (DAAD) to host a DAAD - TUM Asia Speaker Series on the topic of “How 3D Printing is Changing the Equation of Space Research and Recyclability”. Held at SIT@SP, this event is also supported by the Embassy of the Federal Republic of Germany.

CubeSat is a type of miniaturized satellite for space research. It often uses commercial off-the-shelf components for their electronics and structure. 3D printing of such items in orbit would be cheaper and would change the equation of recyclability (thermoplastics), hence making space mission more self-sustaining. Dr. Martin Rott, Academic Director of the Department of Astronautics at the Technical University of Munich (TUM) and Dr. Shweta Agarwala, a research scientist at the Singapore Centre for 3D Printing, Nanyang Technological University (NTU) were invited to share key emerging trends and developments on aerospace and additive engineering as well as raise awareness of the new opportunities and risks at play in areas of software-defined radio technology and hybrid electronic-mechanical structures.

Photos: Israel Tan Photography



Professor Thomas Hofmann elected as TUM's new President

The Board of Trustees of the Technical University of Munich (TUM) has elected Prof. Thomas Hofmann as the new President of TUM. The experienced university manager has held the position of Senior Vice President Research and Innovation at TUM since 2009. He made a significant contribution to TUM's success in the Excellence Initiative, especially in developing the internationally acclaimed "TUM Faculty Tenure Track" recruitment and career system. Under his guidance, TUM also became Germany's top university for the establishment of start-ups. The holder of the Chair of Food Chemistry and Molecular Sensory Science has received multiple awards for his research and teaching.

On October 1, 2019, Prof. Thomas Hofmann will replace Prof. Wolfgang A. Herrmann, the longest-serving university president in Germany, on the TUM Board of Management. Since he took office in 1995, Prof. Herrmann has transformed TUM into the "Entrepreneurial University" and a driver of reform in the management of science and research in Germany. "Thomas Hofmann is an invaluable asset for TUM and the German higher education system," declared Herrmann. "He will steer our university smoothly towards its future with his own particular entrepreneurial priorities. The institutional strategy underpinning the upcoming Excellence Initiative has already been strongly shaped by the new President. TUM is ready to hand the baton to the next generation in its usual efficient manner."

Article retrieved from the Technical University of Munich (17 October 2018)

Photo: TUM Asia



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**In partnership with Singapore Institute of Technology (SIT).

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CPE Registration No. 200105229R / Reg. Period: 13/06/2017 - 12/06/2023