

TUM Asia Hands Out Honorary Scrolls to the Biggest Cohort of Students Yet At Our 8th Masters Graduation Ceremony



...The value of education is not the learning of many facts but the training of the mind to think (Albert Einstein, *Einstein His Life and Universe* (2007) by Walter Isaacson)

Graduate requirements from industries have evolved massively in the current competitive landscape. With the internet rising as a knowledge giant, it is vital that future generations of industry engineers be equipped with the ability to think and analyse; knowing how they can work around problems and situations other than possessing head knowledge. TUM Asia recognises this and strives to grow and nurture our students in this direction to face the challenges that beckon.

Having said this, TUM Asia is proud to witness another batch of Master students crossing their education milestone. On 22nd July, we held our 8th Graduation Ceremony for the first time in an auditorium at the Civil Service College. This year, the class

of 2011 had the privilege of donning their respective faculty gowns and mortar boards to receive their honorary scrolls on stage from our Managing Director Dr. Wächter. TUM Asia was also extremely excited to mark the evening with the biggest graduating cohort of 67 students in 8 years including the first group of students under the Workforce Development Agency sponsorship.

Aside the beaming smiles of our students, our industry partners further lit up the ceremony by handing out 6 awards to our outstanding graduates. Dr. Florian Doetz, Head of Department for Global Research Center Singapore from BASF, Mr. Mario Traeber, Senior Director of Research and Development from LantiQ Asia Pacific, Mr. Franck Le Du, Design Centre Manager, Secure Microcontrollers Division, STMicroelectronics Asia Pacific and Ms. Shannon Neo, Senior Manager, representing Workforce Development Agency each gave out awards to our Best Student and Best Dissertation winners from the Industrial Chemistry, Integrated

Circuit Design and Microelectronic faculties.

The ceremony concluded with sharing from our Industrial Chemistry Best Student and Best Master Dissertation student Mr. Dazril Izrar Phua and Mr. Lim Yew Heng. Quoting an excerpt from Dazril on his learning experience with TUM Asia, *"In the course of study, we were not only able to build on our fundamentals but were also pushed to think about and question them..."*. We hope all students have benefitted in the same manner. We believe our alumni Mr. Avishek Kumar will concur with this statement having mentioned earlier in his sharing that *"The course has given us tremendous opportunities and exposure. What you need to take away from this is not just the subject knowledge, but also the skills that you would have developed directly or indirectly while pursuing it. It has taught us to work hard, work smart, be creative, and think beyond the realms of the books."* Continued on Page 3

WHAT'S INSIDE

04 – 07 Pan Asia Logistics' First Industry Partnership with TUM Asia

08 & 09 Joint German – Singaporean Symposium on Green Logistics

12 & 13 Sharing From Our Alumni

10 & 11 TUM Asia Bachelor Orientation Programme 2011

14 & 15 Research Corner

Director's Message



The past three months have been eventful as we continue with a series of events that paves the way for better things to come.

TUM Asia held its 8th Graduation Ceremony at the Civil Service College on 22nd July 2011. We honoured our biggest graduating cohort of 67 students and our valued industry partners handed out special recognition awards to the Best Students and Best Dissertation award winners. Our students now embark on a new journey in the corporate world and I would like to wish them nothing less but the best. Aside this, I want to thank our industry partners and staffs for all your hard work to make this event a huge success.

With that I would now like to extend a warm welcome to our new batch of students for academic year 2011/2012. This year we saw an intake of 77 Master students and 57 Bachelor students. I want to welcome them into the TUM Asia family and I look forward to the new academic year with their input and partnership.

In a series of further industry collaborations, TUM Asia recently jointly organized the Green Logistics Symposium with DAAD, the Embassy of the Federal Republic of Germany in Singapore along with our university partners, NUS and NTU and selected logistic companies such as DHL on 31st August 2011. The Symposium was well received with a huge turnout of 172 delegates. The attendees were engaged in presentations surrounding best practices and experiences in greening logistics as well as looking into sustainability within the logistics industry. Our visiting lecturer, Professor Peter Klaus was one of the presenters and in pages 8-9 he shares some thoughts on Green Logistics.

On 16th September and 7th October, TUM Asia will be hosting roundtable discussions on topics surrounding talent acquisition, management and retention. Industry participants will find this an excellent opportunity to exchange, explore and discuss ideas they may have on talent management. We will also be presenting at the 3rd Annual Higher Education Leadership Asia Summit on 20th October and moderate a panel discussion then. On 24th November, TUM Asia will cover a topic on Trends in E-mobility at the TÜV SÜD's Conference. It is indeed an exciting quarter with participation in these industry conferences and we are delighted to be able to contribute by providing more insights in these various areas.

At the ground level, more events and activities are in the pipeline for our current students both in the Master and Bachelor programme space and we hope this will enable our students to bond and learn through different avenues.

With this, it will be another busy quarter ahead and as we approach the end of 2011, I would like to thank all my staffs and industry partners for their dedication and support to TUM Asia. It has been a fruitful year so far and I expect bigger and better things to come in 2012.

A handwritten signature in black ink, appearing to read 'M. Wächter', written in a cursive style.

Dr. Markus Wächter
Managing Director, TUM Asia



Mr. Franck Le Du engaged with students at the reception.



TUM Asia Master of Science in Microelectronics graduates.



Mr. Mario Traeber, speaking with Dr. Florian Doetzer from TUM Create.



TUM Asia Master of Science in Industrial Chemistry graduates.



Our esteemed guests from left, Dr. Florian Doetz, Head of Department for Global Research Center Singapore from BASF, Mr. Mario Traeber, Senior Director of Research and Development from LantiQ Asia Pacific, Dr. Markus Wächter, Managing Director of TUM Asia, Mr. Manuel Furtwängler First Secretary, Science and Technology, Federal Republic of Germany, Mr. Franck Le Du, Design Centre Manager, Secure Microcontrollers Division from STMicroelectronics Asia Pacific and Ms. Shannon Neo, Senior Manager from Workforce Development Agency.



Staffs of TUM Asia.



Mr. Eric Phua Jian Rong, winner of Best Master Thesis Award in Master of Science Microelectronics.



Mr. Gibran Limi Jaya, winner of Best Student Award in Master of Science Integrated Circuit Design.



Mr. Dazril Izrar Phua, winner of Best Student Award in Master of Science Industrial Chemistry.



Mr. Lim Yew Heng, winner of Best Master Thesis Award in Master of Science Industrial Chemistry.

Pan Asia Logistics' First Industry Partnership with TUM Asia

In this issue of our newsletter, we provide some real time insights into our interns' experience at Pan Asia Logistics Pte Ltd (PAL). This is our first industry collaboration with PAL and four students are still in the midst of their internship with the company. Yet there has been excellent feedback from both the students and company so far. Two of our interns Christian Tost and Tian Ye are attached to the company headquarters in Singapore whilst Chen Ting Ting and Zhu Xiao Yun are at PAL Shanghai.

Name: Christian Tost
Country of Origin: Germany
Course of study in TUM Asia: Master of Science Transport and Logistics (2010 Intake)

1) Could you share with us your internship experience at Pan Asia Logistics (PAL)?

My internship is very interesting. I am involved in an implementation project of a new customer that handles inbound and outbound shipments of materials, components and finished goods between its production sites, its suppliers and its customers through the warehouse of PAL. My work includes the training on SAP software, the preparation and equipping of the dedicated warehouse space, arrangement of shipments and the designing and improvement of processes to assure smooth flow of operations.

I am glad that I do not have only supporting work to do and that PAL has confidence in me to accomplish challenging tasks. The scope of learning is vast and thanks to the varied services PAL offers it is easy to get in touch with colleagues from different departments which widens the experience one can gain. PAL is a very excellent company for interns to see how Logistic Service Provider environment looks like.

Staffs of PAL are friendly, welcoming and helpful; paired with company activities, social integration is easy.

2) What is the current position you are holding at PAL?

I am working as a Customer Service Officer in the Logistics Department.

3) How have the skills and knowledge you acquired from the Masters programme at TUM Asia benefitted you in your internship so far?

Regarding the warehouse part of my internship I benefitted the most from the course "Material Handling". To understand the overall business of PAL the course "LSP" was helpful the most.

4) What are some of the joint collaborations that you will like to see between TUM Asia and PAL?

Helpful for students could be a guided visit to the PAL premises and a company presentation during which job opportunities as an intern as well as future work perspectives can be discussed at the same time.

5) Do you have any advice to share with our current students who are keen to join PAL either as an intern or as a future placement with the company?

Ask for an interview and talk to PAL.

Name: Tian Ye
Country of Origin: Singapore
Course of study in TUM Asia: Master of Science Transport and Logistics (2010 Intake)

1) Could you share with us your internship experience at Pan Asia Logistics (PAL)?

From these two months work and study, I find that Pan Asia Logistics is a very professional and potential company in this area. The more time I spend here, the more I like this company. All the things I saw, I heard, I experienced here have become an unforgettable memory of mine.

First of all, they have very professional work team and advanced work style. Working with those experienced people can not only encourage myself to contribute all the things I studied from our courses to this company, but can also quickly improve and enrich myself. For example, I'm mainly responsible for the freight forwarding transaction of Beijing and Zhuhai in China. From this job



Christian Tost (left) and Tian Ye (right) at PAL headquarters here in Singapore.

scope it helps me to familiarize myself with the whole process of freight forwarding and realized the difference between the practical situation and what we learn from the books. Beyond that, there is one more thing that is most worth mentioning is this company's spirit and culture. From the first day I came here, I feel very surprised at the work atmosphere here. After several weeks, I finally understand the reason for that. They never treat their employees as "staff", which is usually done by the boss' of most companies. Instead, they treat all their employees right from the bottom to top like "partners". And they truly believe everyone, even an intern like me, is contributing to the growth and success of the company. They will give all the passionate candidates a chance to work here. Consequently, this strong sense of belonging inspires all the staffs here to put in their best to contribute the company!

In a summary, these two months is a meaningful experience to me. I really appreciate PAL and TUM Asia for giving me this chance to do the internship at here.

2) What is the current position you are holding at PAL?

My position is Accounting Trainee, who is mainly responsible to handle and supervise the export and import freight forwarding transaction of Beijing and Zhuhai representative office and analyze and develop the monthly report system.

3) How have the skills and knowledge you acquired from the Masters programme at TUM Asia benefitted you in your internship?

- From the course study, I know the general function and operation process of the third party logistics company, which helped to minimize the time I took to adapt myself into every new job scope I was given when I first started my internship
- For the content of my internship, as PAL is a 3rd party logistics company, the course knowledge I acquired, especially "LSP Management", does help me greatly. For example, in the process of handling the freight forwarding transaction, I was able to understand the relationship and different roles between vendors, customers and our company. This consequently leads to the improvement of my work quality.
- For the efficiency of work, from this one-year master programme study, the limited time and intensive course modules allowed me to get used to studying and working independently and cooperatively under high pressure. So now when I am given some challenging job, basically, I know how to plan it reasonably and solve it.

4) What are some of the joint collaborations that you will like to see between TUM Asia and PAL?

I think all the TUM students from Transportation and Logistics will appreciate it deeply, if PAL and TUM can cooperate to give students a chance to visit the real warehouse world. It is because during our study process, we felt some of the professional words or operation processes are too



Chen Ting Ting (centre left) and Zhu Xiao Yun (centre right) at the PAL Shanghai office.

abstract for us to imagine and understand. For example, in the course of "Design and Application of Material Handling Systems", there are a lot of introductions and explanations about the layout and the handling process of the warehouse. As we've never seen warehouse before, at that time, it was very difficult for us to understand. However, from these two months of work, I find Pan Asia Logistics is in a very professional and advanced position in this area. So I think if the esteemed Pan Asia Logistics and my university can have the chance to join hands together to give the students a chance to visit their warehouse. We definitely will benefit a lot from it.

5) Do you have any advice to share with our current students who are keen to join PAL either as an intern or in a future placement with the company?

About the suggestion, I think, first of all, it is really important to put emphasis on all the aspects of Logistics study. Because after I started my internship, I find every job is not about only one aspect or only one course. It usually requires us to first consolidate all the things we studied in our programme then come up with a solution. Therefore, daily study is very important. Besides, what I benefitted most is, from my master study, I know how to study, think, and work both independently and cooperatively, which plays a significant role in my present work. It is because sometimes we need to solve the problem by ourselves. Therefore, from this point of view, it is very helpful. Beyond that, my last suggestion would be Pan Asia Logistics is really a good place to do the internship and work. It is not just an internship or work; it is a kind of experience!

Name: Chen Tingting

Country of Origin: China

Course of study in TUM Asia: Master of Science Transport and Logistics (2010 Intake)

1) Could you share with us your internship experience at Pan Asia Logistics (PAL)?

Continued on next page

How time flies! It has been two months since I took my internship with PAL from 1st July. Days in PAL are quite happy and I have now gradually loved this big family.

At first I was unfamiliar with the operation of airfreight, but I soon learnt to handle my work well under the guidance of my supervisor. My colleagues are also warm, encouraging and kind to teach me when I made mistakes, which is important and valuable to me in all aspects.

The internship with Pan Asia is indeed a good chance for me to see how the classroom learning applies in the real world. In addition, it's a good way to evaluate what I've learned in school and what I need to learn more about. I will work harder and make my days in PAL meaningful.

2) What is the current position you are holding at PAL?

An Operator of the Airfreight Department.

3) How have the skills and knowledge you acquired from the Masters programme at TUM Asia benefitted you in your internship?

It's widely acknowledged by most graduates that there is a gap between theory and practice to some extent. I also have the same kind of feeling while taking my internship. However, I still believe that the skills and knowledge I learnt from class do have a significant influence on my internship. The professional knowledge and skills not only offer me a better insight about the dynamic logistics industry, but also help me get familiar with and even master the real operations quickly. Now what I am searching for is a way to apply the expertise into my internship more flexibly.

4) What are some of the joint collaborations that you will like to see between TUM Asia and PAL?

If TUM Asia can invite some experienced managers of PAL to give speeches or classes once or twice every semester, the effect of the joint collaboration would be better.

5) Do you have any advice to share with our current students who are keen to join PAL either as an intern or in a future placement with the company?

An internship is one of the most practical steps you can take in your career search. It offers you the opportunity to weigh what you like and don't like about a company or an industry, make industry contacts, and develop professional skills. In summary, it can help steer your career decision and provide you with a better understanding of yourself.

Once you're on the job, stay modest and be hardworking. No matter what your duties are, work diligently and maintain a positive attitude. Remember that part of the learning experience is absorbing what's going on around you.

My internship experience with PAL is a happy and beneficial one so far. I believe that PAL is a very good choice for internship and even future career.

Name: Zhu Xiaoyun
Country of Origin: China
Course of study in TUM Asia: Master of Science Transport and Logistics (2010 Intake)

1) Could you share with us your internship experience at Pan Asia Logistics (PAL)?

I've been doing ocean freight forwarding for two months. Now I think for those with no working experience, doing internship in a medium-sized company like PAL is much better than working for a leading company or big firms. Because large corporations already built a well-developed system for operation and job division is specialized. Intern can only do trivial work at the beginning. But in PAL, we have an opportunity to learn more.

2) What is the current position you are holding at PAL?

Ocean Freight Operations Officer.

3) How have the skills and knowledge you acquired from the Masters programme at TUM Asia benefitted you in your internship?

To be honest, theory and practice is not necessarily consistent. But the active learning helped me a lot.

4) What are some of the joint collaborations that you will like to see between TUM Asia and PAL?

I hope the experienced employees or directors can provide presentations to our students. Students are interested in specific work and experience rather than the knowledge which can be searched from the internet. If possible, I hope that PAL can arrange a "company tour" which will help students to realize daily operation of PAL.

5) Do you have any advice to share with our current students who are keen to join PAL either as an intern or in a future placement with the company?

For those who want to do internship in PAL, you must have a clear idea of what you want to do first. Then get ready to start with the most basic and trivial work. Of course you should be patient and keep learning from the seniors. But you can't depend on others to always teach you. Finally you must be able to handle your job independently and work under pressure.

Words from the employers of PAL

1) What are the current and future possible partnerships between TUM Asia and Pan Asia Logistics?

Pan Asia Logistics is permanently on the lookout for young talents and management trainees. This is why we are in close cooperation with Logistics Universities for quite some time. In cooperating with TUM, as one of the elite Universities in Germany and a premier address in Europe, we certainly hope to win over talented young people for our organisation.

Besides giving TUM Asia students the opportunity to work on logistics projects in our company while preparing their thesis for the Master of Science in Transportation & Logistics, we are keen to support TUM Asia's plan to launch

the Bachelor of Science in Logistics and Transport programme. Pan Asia Logistics will be happy to participate as a selected sponsoring company in the joint industry sponsorship programme.

2) Could you share your experience of having TUM Asia students as interns in your company so far?

We took in the first four TUM Asia students in June, two at the Pan Asia Logistics headquarters in Singapore and two in Shanghai. All four of them are doing great. They are very motivated, get on well with their colleagues and their supervisors and mentors are full of praise. We are doubtlessly looking at a success story four times over.



3) What are some of the company views/opinions on internship/industrial attachment (8 months) programme and on students who are currently doing their internships with Pan Asia Logistics; do they have a higher chance of being hired by Pan Asia Logistics as permanent staff upon graduation?

Providing students with the opportunity to do their internships with us, gives us the chance to identify high performers and find out whether they fit in our organisation and, at the same time, students become acquainted and find out if they could identify with the company and the people.

By letting them work on interesting projects, we are binding and enthraling them and open jobs can be filled with highly qualified people.

The four TUM Asia students, who are completing their Master Thesis and Internship at Pan Asia Logistics, are all assigned to projects, entrusted with clearly defined tasks.

Interns have indeed a high chance to be hired.

4) What are some of the expectations you have of graduates when it comes to hiring them for placement of positions in Pan Asia Logistics?

We expect of them what we expect of all our employees and that is to be highly driven and committed to our goal to achieve excellence in everything we do.

5) Compared to other students that you have interacted with, how do you find TUM Asia's students thus far?

It's probably not appropriate to make a comparison with students from other Universities at that point in time; however, we are very delighted and satisfied with the performance and attitude of all four TUM students currently completing their internship and Master Thesis with us. TUM Asia has every reason to be proud of them.

6) Could you share your view on current situation/need of skilled employees for Singapore's Logistic industries and how such programs will fit into it from an employer's perspective?

Singapore's logistics sector is one of the key industries of the country's economy. The tough competition in the

logistics and transportation business requires companies involved in the industry to be innovative by constantly developing new methods and to be fast by perpetually adapt to the ever changing environment, in order to ensure sustainability and continued growth. Young talents are very much in demand and Logistics Universities, as the breeding ground, are the very source to find future top performers.

7) Could you share on Pan Asia Logistics future planning/directions, especially in terms of manpower/skilled employees planning?

Pan Asia Logistics is a fast growing logistics provider and a global player. To achieve our ambitious goals and in order to keep up with the development of our company, we are constantly enhancing our workforce. Today we provide state-of-the-art logistics services to our clients with uncompromised dedication and we have every intention to keep on doing just that in many years to come. We permanently need to increase the number of skilled employees, young professionals and competent managers on all levels of the organisation.

About Pan Logistics Singapore

- Pan Asia Logistics is headquartered in Singapore and has 38 offices all over Asia and an extensive network of partners, agents and alliances around the world.
- Founded in 2002, its annual turnover today is \$140 million with a workforce of 700 people.
- The company provides freight forwarding and fully integrated logistics and supply chain solutions on a global scale.
- The company opened a 250,000 sq ft warehouse in Changi North this year and plans to build a 750,000 sq ft warehouse in the west of Singapore.

For additional guidance and information from our corporate communications department, please contact: hr@panalogs.com or visit our web site at www.panalogs.com

Joint German – Singaporean Symposium on Green Logistics

The joint German – Singaporean Symposium on Green Logistics took place on 31st August 2011 at the National University of Singapore. This was an event jointly organised by TUM Asia, DAAD, the Embassy of the Federal Republic of Germany in Singapore and The Logistics Institute Asia Pacific along with our university partners, NUS and NTU. It was also supported by DHL and the German Logistics Association (BVL).

This Symposium aims to provide a spectrum of perspectives into Green Logistics and the event day was split into 3 different sessions addressing firstly the global initiatives and best practices, secondly the sustainability efforts in the logistics industry and lastly, policies and infrastructures in place to support this. The event had a strong representation of speakers from well noted companies and institutions; TUM Asia's visiting lecturer Professor Peter Klaus from University of Nuremberg-Erlangen was part of the panel of speakers and TUM Asia's managing director Dr. Markus Wächter moderated the last panel discussion towards the end of the event.

The various topics and panel discussions provided the attendees with valuable insights into the logistic industries greening efforts; there is much to learn from the forefront runners in the European continents as the delegates listened intently to the European experiences and best practices shared by the speakers. What is interesting of note is that there is actually a correlation in efficacy on the entire supply chain if you look into how green logistics impacts the organization as a whole. This widens the entire concept of green logistics and sets the stage for attendees to get an insight into how evolving green policies have an impact on other industries such as the maritime sector. To add icing to the cake, attendees were invited to attend a 3D presentation on Harbour Logistics hosted by Professor Carlos Jahn from the Hamburg University of Technology. The interactive session added flavour to his presentation on Innovative Port Logistics Planning where delegates saw how visualization and calculated planning can allow the port logistics industry to achieve environmental and economic benefits by working out the best logistics solution through different scenarios.

The Symposium was overall a huge success with turnout of 172 delegates. TUM Asia took the opportunity to invite



Professor Klaus answering a question from one of the delegates during the first panel discussion.

Professor Peter Klaus to further share his views on this topic.

Professor Peter Klaus, can you tell us more about why you encourage a conservative perspective into Green Logistics?

I have been an observer of the political and public discussions in Germany on "greening" and "sustainability" for many years. This made me somewhat cautious with respect to both what the potential impact of "green logistics" can be relative to the magnitude of the challenge, and also with respect to the choice of the approaches that seem to be most popular currently among the users and suppliers of logistics services.

1. The contribution of all logistics activities to all carbon dioxide emissions today – according to my reading of the statistics – is less than 20%. And with the need of the large "threshold" economies of China, India, South America, to still catch up in their efforts to provide most of their citizens a decent standard of living, there is no realistic chance to reduce that share. Even with best efforts the share of CO₂ caused by logistics activities may have to rise. To just keep those increases at a moderate level will be a great achievement.
2. My other concern is that those efforts in "greening logistics" which are most popular are not the ones which have most leverage: The uses of telematics, efforts to reducing vehicle energy consumption, and modal shift in cargo transportation – as probably the most frequently considered types of "greening" efforts – should not be discounted. But I think that much bigger energy and emission savings potentials would be in the areas of designing products with logistics efficiency in mind – such as more compact packaging, changes of production and distribution schedules to allow for more efficient two-way utilization of transportation equipment, and the redesign of production-distribution networks in ways which delimit very bulky, very time-critical shipping to the minimum, and the design of toll systems and other fiscal incentives to change the behaviours of shippers and logistics providers accordingly. There are interesting examples showing how powerful those "indirect" approaches to greening logistics can be.



Professor Peter Klaus during his presentation session on the topic of Beyond Transportation: European Experiences in "Greening" Logistics.



Dr. Markus Wächter moderating the last panel discussion with Professor Carlos Jahn, Director of the Institute of Maritime Logistics, Hamburg University of Technology (TUHH), Mr. Dipl.-Ing. Benno Vocke from TUM and Mr. Heng Chiang Gnee, Executive Director, Singapore Maritime Institute.

Other than government regulations and possible operational savings for the companies, what else do you think can motivate companies to go green logistically?

One of the fundamental insights on which modern logistics is based on is that you design and redesign things “backwards” – from the final customer or user to the distributors, producers, and their suppliers. This means that you first try to change consumer behaviours. In Germany we have some – if quite preliminary efforts to signal to consumer, which products have been made and distributed in more environmentally conscious ways, and which not.

Environmentally relevant and honest Information of this kind through “traffic light symbols” of red, yellow, green may be a step in the right direction.

Of the best European practices in freight transport and logistics shared, which in your opinion is the most successful and why?

Our German road toll system, once fully utilized as a dynamic, congestion-related way to influence traffic flows, may be one example.

From a long-term research perspective I believe that the systematic analysis of the economy-wide flows of goods and materials is a precondition to more effective environmental policies. Once we have identified, which activities at which stage of the major value chains in the economy exert most impact on our consumption of non-renewable energies and related emissions, we can be much more focussed in our “greening” efforts.

We have started some research efforts into that direction in our country – doing economy-wide input-output analysis not just in money terms (as the economists have been doing for quite some time), but also in physical terms on tons and items to be transported and handled. I hope we can join up with researchers in Asia and other parts of the world to make this a broad effort covering the global trade flows.

Thank you Professor Klaus for agreeing to this interview, offering your valuable comments and insights to these questions.

Professor Klaus will be speaking at the The Art and Science of Designing Logistical Network workshop happening on November 21-22 at TUM Asia.

PROJECT MANAGEMENT IN

CHEMICAL INDUSTRY

About The Course
 Good project management plays an important part in gaining success on complex projects in the chemical industry. This workshop will highlight important aspects of project management in refinery and petrochemical sectors within the chemical industry.

Interaction between research and development phases and business units will be discussed with case studies illustrated.

Course Highlights

- Project organization (Dos and Don'ts in project management, cut-off points, pitfalls)
- Different types of engineering contracts and service providers
- Performance guarantees with varying degrees of penalties/liabilities
- Strategic alliances
- Health, Safety and Environment issues
- Government regulations and compliances

Speaker:
 Professor Wilfried Petzny, PhD, CChem, FRSC, Prof. (hon.) has more than 30 years of experience in the oil and petrochemical industry. He has numerous patents on oil residue and coal liquefaction and is an honorary member in various chemical associations. Served as Chairman for the petrochemical forum of the World Petroleum Congress in 1974, 2000 and 2002.

Course Dates: 27 to 28 October 2011
Course Fee: SGD 1,177 (inclusive of GST)
 SGD 550 (after WDA subsidy for Singaporeans/PRs)
Closing Date: 21st October 2011

THE ART AND SCIENCE OF

DESIGNING LOGISTICAL NETWORK

About The Course
 This programme introduces participants to the “science” of network design by giving an overview of the fundamental concepts of logistical network analysis and the opportunities which advanced mathematical and IT-based systems are offering today.

Course Highlights

- Fundamentals of transport and location network analysis and design
- Best practices in the “art” of network design: concepts and case studies
- Application of mathematical concepts of network optimization
- Overview on selected network design systems

Speakers:
 Professor Peter Klaus, D.B.A/Boston University, University of Erlangen-Nurnberg, long time research and consulting experience in both outsourcing and contract logistics projects. Nominated to Logistics Hall of Fame by Logistics Inside, a trade journal. Also the recipient of DHL Innovation Award.

Professor Oliver Kunze, University of Applied Sciences, Ulm, long term experience with PTV, Karlsruhe, a leading developer and provider of network planning systems.

Guest Speaker: Mr. Juergen Schulz, Executive Vice President of LOCOM Consulting
Course Dates: 21 to 22 November 2011
Course Fee: SGD 1,819 (inclusive of GST)
 SGD 850 (after WDA subsidy for Singaporeans/PRs)
Closing Date: 14 November 2011

REGISTER @ WWW.GIST.EDU.SG OR

EMAIL TO EXEC.TRAINING@GIST.EDU.SG

Venue: GIST-TUM Asia, 10 Central Exchange Green, Pixel Building, Level 1

TUM Asia Bachelor Orientation Programme 2011

From small beginnings come great things and this year TUM Asia is excited to welcome our Academic Year 2011 Bachelor students at the orientation programme held at the Singapore Polytechnic on 1st July.

The students were seated by 9:20am and Professor Ulf Schlichtmann, Dean from the department of Electrical Engineering and Information Technology, TUM who warmly graced the event, opened the session with his welcoming address to the students. They were further addressed by TUM Asia's Managing Director Dr. Markus Wächter and also by Dr. Victor Goh who is the Programme Director from our partnering institute, Singapore Institute of Technology.

The programme agenda lined up something different this year. 2 students from the 2010 cohort were invited to share about their student life in the past year. Su Wei Jie and Ng Yu Ning who are currently the Student Management Council President and Vice President both highlighted the intensive schedule of the course modules and how they managed to overcome the challenges by always seeking help from the lecturers and supporting one another in their own study groups; Wei Jie during his sharing mentioned this *'... I must also warn you that at a certain point in time, you will feel the pressure of the hectic schedule of the timetable. There will be many moments where u will feel stressed out by how foreign some of the chapters would be and how you can cope with the lessons and examinations. Using my past year experience, I would advise you to have an open mind set towards learning, don't be "kia-si", thinking that you will not be able to make it, instead be "kia-su"!*. The takeaway for students is that they should not to be daunted by the challenges ahead but they can easily rise above them and make their next two and half years an exceptional experience of their lifetime.

The orientation concluded with some general information on the school facilities by Ms. Sally Hor from Singapore Polytechnic and the students went around the campus on a tour of the library and classrooms.

About TUM Asia Bachelor of Science programmes

The Bachelor of Science in Electrical Engineering and Information Technology and Bachelor of Science in Chemical Engineering programmes are run collaboratively between the Singapore Institute of Technology (SIT) and TUM Asia. These are full time degree programmes whereby it is equivalent in both quality and content with the courses held at the home campus of Technische Universität München (TUM). Interested applicants can refer to SIT website at www.singaporetech.edu.sg for more information.



Professor Ulf Schlichtmann, Dean from the department of Electrical Engineering and Information Technology, TUM at his welcome address.



Dr. Markus Wächter, Managing Director of TUM Asia addressing the students.



Dr. Victor Goh, Programme Director from Singapore Institute of Technology (SIT) welcoming students on behalf of SIT.



TUM Asia Bachelor of Science Electrical Engineering and Information Technology 2010 cohort students assisting at the event.



TUM Asia Bachelor Academic Services staff, Calvin, Zara and Eileen.



TUM Asia Bachelor of Science in Electrical Engineering and Information Technology 2011 cohort.



TUM Asia Bachelor of Science in Chemical Engineering 2011 cohort.

I Believe My TUM Asia Experience Has Instilled in Me Greater Confidence in Approaching New Challenges – Dazril Izrar Phua



Dazril making his speech at TUM Asia 8th Master Graduation Ceremony.

1. Can you share with us how you came to know about the Master programme at TUM Asia?

Quite serendipitously, actually. There's a notice board dedicated to the Industrial Chemistry programme situated near LT 23 at the Faculty of Science in NUS and I glanced at an "Industrial Chemistry" poster a few times when I walked past it. However, I only took a closer look towards the end of my 3rd year and looked up the GIST website as well as attended a road show by the TUM Asia team at NUS, to find out more.

2. What made you decide to sign up with the programme?

I found the Industrial Chemistry Master's Degree Programme to be a right fit in terms of being an extension of my undergraduate course of study in Applied Chemistry and more importantly, it would direct me towards achieving my career aspiration of working in a multinational chemicals company with good career development prospects so that I would be able to take on technically-competent as well as cross-functional professions.

I was most attracted to the well-structured and progressive curriculum that constitutes this programme. This master's degree offered at GIST is unique in its academic-to-industry approach combining both excellent academic education by renowned scientists-educators and the best of German technological training.

3. Which area were you specialised in? Were you interested in any particular area of study?

I decided to go with the general specialization because modules from both specializations piqued my interests and I was determined to gain a broader and deeper knowledge of various fields of chemistry in order to be able to be better informed of the exciting science being done in the respective fields. I felt that this would enable me to have a

bigger picture of the opportunities available that best suit my career goals and interests.

4. After two years on the programme, what are your thoughts about it?

I feel that it has been a pretty exciting ride for me. I enjoyed the classes taught by the TUM professors and the intimate and effective small-class learning experience. As a recipient of the sponsorship by BASF, I am also thankful for the opportunity to undertake my internship and master thesis at their Verbund site in Ludwigshafen, Germany. It was a truly unique and invaluable learning experience, both in term of professional and personal developments.

5. Can you share about your student life in Singapore?

– Do you attend lectures on a daily basis?

Yes, most of the time we had lectures daily. We usually started at 9 am and ended by 5 pm. We had regular breaks in between and occasionally there were shorter days as well as free days.

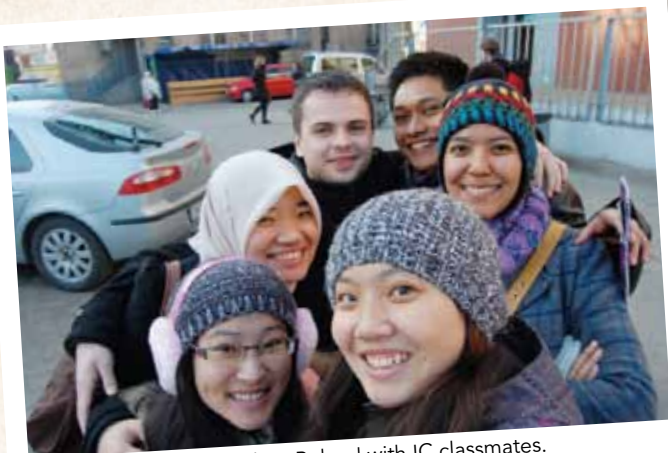
The timetable was intense at times but because we were able to concentrate on one or two modules at a time, it was more focussed and manageable.

– Any interesting story/incidents to share?

In the first few weeks of the semester, Prof. Dr. Herrmann was in town for a few days to deliver his lecture on organometallic and coordination chemistry. We didn't expect the president of TUM to deliver the lecture personally amidst his busy schedule. I think everyone in



IC classmates Regina & Yew Heng visiting Dazril during his internship at BASF.



Dazril in charming Wrocław, Poland with IC classmates.



Celebrating Hari Raya in Bacharach with IC classmate, Amylia.

class was a little in awe of his imposing figure and stature. His lively lectures and encouraging manner quickly put us at ease. He even welcomed direct communication with him via his personal email.

We forged close rapport with some of our other lecturers as well and sometimes lunched with them or had pizzas ordered so we could have a little party of sorts at the end of the lecture series.

On the flipside, we weren't spared from interesting characters masquerading as lecturers ;) We got one who inadvertently and clumsily drew on his shirt with the whiteboard marker.

6. Can you please share with us your internship experience?

– What was your role at the company you were attached to?

I did my internship and thesis at the polymer research division of BASF SE in Ludwigshafen, Germany. I was working on the surface treatment of superabsorbent polymers to improve their physical performance properties. The bulk of superabsorbent polymers are used in the absorbent core of baby diapers. My project looked into optimizing the absorption capacity and permeability properties of this type of polymers.

– Do you enjoy the internship experience?

Yes I definitely did because I had an interesting project and very supportive and encouraging colleagues and superiors.

– What is your best takeaway from the internship experience?

It is important to be diligent and curious, and to be engaged in the work and social aspects of the internship experience.

7. Were you involved in any extra curriculum activities during your course of study and how did that help you in your student life?

I was not committed to any particular extra-curricular activities.

8. What do you do during your leisure time while studying here?

Nothing out of the ordinary, like any Singaporeans, I enjoy good food, good shopping, and some sports, all in the great company of friends and family.

9. Did you manage to do some travelling around Asia / Europe during your internship and studies?

Yes, European cities are very well connected by rail and budget airlines. So I did make full use of the opportunity and planned early. Some of the cities I visited include Berlin, Munich, Hamburg, Cologne, Dresden, Nuremberg, Prague, Wrocław, Krakow, Gdansk, Warsaw, Vienna, and Fez in Morocco. Moreover, as a student in Germany, I was entitled to purchase a semester ticket which enabled me to go on the local public transport and well as regional trains within the German state I was in. That allowed me to visit smaller but interesting German towns and cities, especially on weekend, just for short escapes.

10. You were awarded the Best Student Award in Industrial Chemistry during your Graduation Ceremony. Tell us how do you feel receiving this award and what is this award all about?

I am humbled and honoured to have received this award. More than anything, this award is testament to the hard work and support of people dear to me, who have made it possible and comfortable for me to pursue my goals and interest. The award provides great affirmation and encouragement for me to continue pursuing a career in the chemical field.

11. Where are you currently working at and how has the programme you went through in TUM Asia benefited you in your current job scope?

I will be starting my PhD in polymer chemistry at the German Wool Institute (DWI an der RWTH, Aachen) in Aachen, Germany. I believe my TUM Asia experience has instilled in me greater confidence in approaching new challenges.

12. What are some of the advice you can offer to the potential students?

Enjoy the small class size and make full use of the opportunity to participate, interact and engage your classmates and lecturers.

Start early in the search for internship/thesis placements. Identify your research interests/strengths are but remain open to new experiences.

Make full use of options on offer for training and stay positive, meet people and enjoy what you're doing!

13. What are your plans for the years to come?

I wish for a fulfilling and smooth PhD journey and to gain much wisdom and perspective before embarking on an exciting career in the chemical industry.

Research Corner



MUTE-prototype on the test track

Successful test runs of TU München's electric car: MUTE prototype displays excellent driving dynamics

Technische Universität München will be presenting its new electric vehicle concept "MUTE" at the international motor show in Frankfurt from 15 to 25 September. Following months of preliminary work on computer simulations, the first completed prototype showed in driving tests that MUTE possesses excellent driving properties – not only in theory, but also in practice.

For the first time, a handful of curious bystanders had the opportunity to see TU München's new electric vehicle in test runs. But the final design of MUTE remained shrouded; it will first be revealed at the IAA in Frankfurt (15 – 25 September 2011, hall 4, C 23). The MUTE prototype is built so that it has the same driving dynamics as the final vehicle.

The first test drives speak for the ingenious construction of the vehicle, which was tried and tested in numerous computer simulations. Particularly noticeable are MUTE's narrow tires. They minimize rolling friction, thereby extending the range of the vehicle. To ensure good cornering ability in spite of the narrow tires (115/70R16), the lateral dynamics of the vehicle were optimized by adjusting suspension, damping and axle kinematics. As a result the MUTE prototype completed the ISO Lane Change test better than a most conventional medium-sized automobiles.

A further important feature is the low weight of the vehicle. MUTE has a curb weight of only 400 kg, with

another 100 kg for the batteries. "Low weight is essential for electric vehicles," says Professor Markus Lienkamp from the Chair of Automotive Technology at TUM. "More weight requires higher battery capacity for the same range and thus generates significantly higher costs. More weight also means inferior dynamics for a given level of motor power. But what we are aiming at is an affordable car that is fun to drive."

MUTE's low curb weight means that the weight of passengers and baggage cannot be ignored, which is why the ratio between the spring force and the resulting contact patch load is chosen slightly progressive. This ensures

that driving comfort remains the same for both light and heavy drivers, although using springs with linear characteristic. Approaching full load the spring force in the tire contact patch increases progressively, diminishing comfort slightly to allow for sufficient residual spring travel.

The results of the first test runs are also important for the design of the active torque vectoring differential. A small electric machine integrated in the differential serves to distribute the force evenly between the two back wheels. Especially when braking in curves, twice as much energy can be recouped than without torque vectoring. This ideal distribution of propulsive force between the two back wheels makes the car much more agile and safer. As a result the driver will hardly notice any reduction in lateral dynamics caused by the narrow width of the tires.

Whenever possible, MUTE brakes by using the electric motor as a generator. The recovered energy is then fed back into the battery. When more braking power is needed, the electronic stability control (ESC) also activates the disc brakes on the front wheels.

"MUTE achieves a high level of safety through ESC and torque vectoring," says Michael Graf, who designed the driving dynamics parameters and subsequently did the test drives. "MUTE falls into the top 25 percent of existing medium-sized vehicles when it comes to driving dynamics and is absolutely easy to handle." Even load reversal in curves does not impede safe handling of the vehicle – oversteering is easy to compensate. "Our practical tests show that MUTE outperforms theoretical forecasts," he adds proudly.

For more press reading: http://portal.mytum.de/pressestelle/pressemitteilungen/NewsArticle_20110713_093724

Sensor chip for monitoring tumors

A chip implant may soon be capable of monitoring tumors that are difficult to operate on or growing slowly. Medical engineers at Technische Universitaet Muenchen (TUM) have developed an electronic sensor chip that can determine the oxygen content in a patient's tissue fluid. This data can then be wirelessly transmitted to the patient's doctor to support the choice of therapy. A drop in oxygen content in tissue surrounding a tumor indicates that the tumor might be growing faster and becoming aggressive.

A surgery is usually one of the first therapy options in cancer treatment. However, some tumors, such as brain tumors, can be difficult to operate on if there is a risk of damaging surrounding nerve tissue. Other cancerous tumors, such as prostate carcinoma, grow at a very slow rate and primarily affect older patients. Operating in these cases often lowers patients' quality of life without significantly extending their life expectancy.

A team of medical engineers headed by Prof. Bernhard Wolf at the TUM Heinz Nixdorf Chair of Medical Electronics have now developed a sensor chip that can be implanted close to a tumor. The sensor chip measures the concentration of dissolved oxygen in the tissue and wirelessly transmits this information to a receiver carried by the patient. The receiver forwards the data to the patient's doctor, who can then monitor the tumor's development and arrange for an operation or therapies such as chemotherapy. The tumor is thus continually monitored and the patient does not have to visit the practice or hospital as frequently for check-ups.

The sensor chip has already passed laboratory tests with cell and tissue cultures. The main challenge for the researchers was developing a sensor that functions entirely autonomously for long periods of time. The sensor must continue to function and deliver correct values even in the presence of protein contamination or cell debris. It also has to be "invisible" to the body so that it is not identified as a foreign object, attacked and encapsulated in tissue.

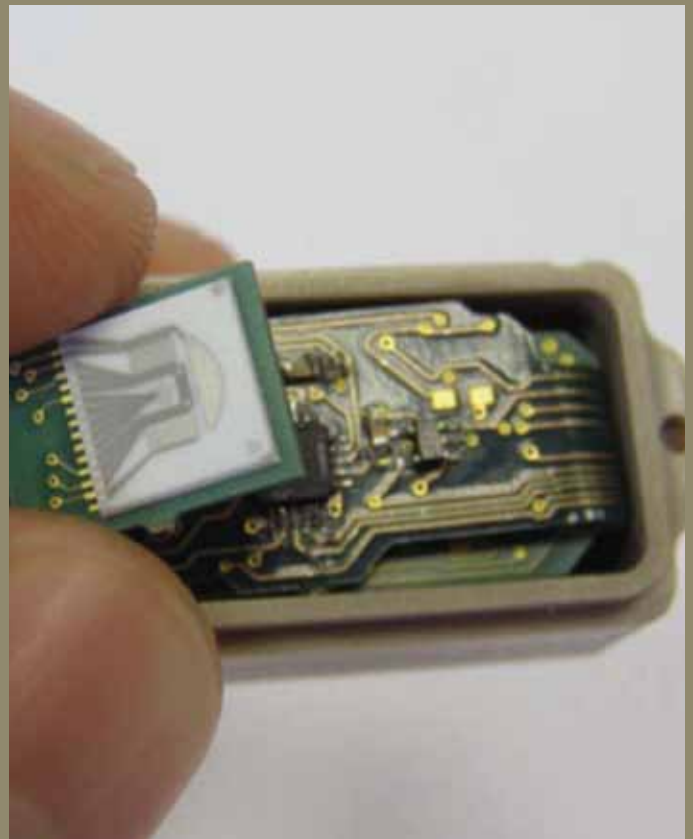
"We designed the sensor chip to self-calibrate to a set dissolved oxygen concentration at measurement intervals," explains engineer and project manager Sven Becker. "In addition, we enclosed the sensor chip, analysis electronics, transmitter and batteries in a biocompatible plastic housing."

Not even twice the size of a thumbnail, the sensor chip and electronics have a compact footprint. However, the package must be made even smaller before it can be implanted in cancer patients using minimally invasive surgery. In addition, the designers want to add additional

sensors for measuring acidity and temperature. Also at the development phase is a miniature medication pump to be implanted with the sensor chip. The pump will be able to release chemotherapeutic agents in direct proximity to the tumor if necessary. Before moving on to the next phase, the sensor has to pass trials in animals. The researchers hope that the new technology will make cancer therapies more targeted and less aggressive for patients.

The IntelliTuM (Intelligent Implant for Tumor Monitoring) project was supported by the Heinz Nixdorf Stiftung and received EUR 500,000 in funding from Germany's Federal Ministry of Education and Research.

For more press reading: http://portal.mytum.de/pressestelle/pressemitteilungen/NewsArticle_20110823_143823



The sensor chip, analysis electronics, transmitter and battery are enclosed in housing barely double the size of a thumbnail.

Announcements

TUM Asia Stammtisch resumes on every first Friday of the month

Email invitations are sent out 2 weeks prior with event venue details. Alumni and current students are encouraged to come together to mingle and the event is an excellent opportunity to catch up with the professors that are in Singapore doing their teaching.

TUM Asia on Facebook

'Like' GIST-TUM Asia ("TUM Asia") fanpage and get updated with the Alumni and student activities that are happening.

Student Recruitment Officers on the move

Our student recruitment officers will be at the following cities between October to December 2011.

Date (Day)	Time	Event	City ,Country	Venue
15-16 Oct (Sat & Sun)	8am to 4:30pm	China Education Expo 2011	Beijing, China	China World Exhibition Hall, Beijing
18 Oct (Tue)	12:30 to 5:30pm	China Education Expo 2011	Qingdao, China	Shangri-La Hotel Qingdao
20 Oct (Thu)	12:30 to 5:30pm	China Education Expo 2011	Xi'an, China	Shangri-La Hotel Xi'an
22-23 Oct (Sat & Sun)	8am to 4:30pm	China Education Expo 2011	Shanghai, China	Shanghai East Asia Exhibition Hall
25 Oct (Tue)	12:30 to 5:30pm	China Education Expo 2011	Wuhan, China	Shangri-La Hotel Wuhan
27 Oct (Thu)	12:30 to 5:30pm	China Education Expo 2011	Chengdu, China	Shangri-La Hotel Chengdu
29-30 Oct (Sat & Sun)	12:30 to 5:30pm	China Education Expo 2011	Guangzhou, China	Guangzhou Dongfang Hotel
22-24 Oct (Sat & Mon)	12pm to 6pm	European Higher Education Fair (EHEF) Taiwan	Taipei, China	Taipei Show Exhibition Hall Two
1 Nov (Tue)	5pm to 8pm	QS World Grad School Tour	Bangkok, Thailand	Four Seasons Hotel
12-13 Nov (Sat-Tue)	7am to 6pm	European Higher Education Fair (EHEF) Indonesia	Jakarta, Indonesia	Merak Room, Jakarta Convention Center
15 Nov (Sat-Tue)	9am to 6pm	European Higher Education Fair (EHEF) Indonesia	Medan, Indonesia	Grand Aston City Hall Hotel
29 Nov (Tue)	5pm to 8pm	QS World Grad School Tour	Mumbai, India	The Leela Kempinski Mumbai
1 Dec (Thu)	5pm to 8pm	QS World Grad School Tour	Hyderabad, India	Taj Krishna
3 to 4 Dec (Sat to Sun)	11am to 6pm	Education Worldwide India	New Delhi, India	Pragati Maidan
4 Dec (Sun)	2pm to 5pm	QS World Grad School Tour	Bangalore, India	Vivanta by Taj, Taj Residency
6 Dec (Tue)	5pm to 8pm	QS World Grad School Tour	Chennai, India	Sheraton Park Hotel and Towers
6 Dec (Tue)	11am to 6pm	Education Worldwide India	Hyderabad, India	Taj Deccan
10 to 11 Dec (Sat to Sun)	12pm to 6pm	Facon Education Fair	Kuala Lumpur, Malaysia	Putra World Trade Centre
14 Dec (Wed)	12pm to 6pm	Facon Education Fair	Penang, Malaysia	Traders Hotel

Upcoming events

Event	Date
Project Management in Chemical Industry Executive Workshop	27 & 28 October 2011
The Art and Science of Designing Logistical Network Executive Workshop	21 & 22 November 2011

GERMAN INSTITUTE OF SCIENCE AND TECHNOLOGY-TUM ASIA (TUM ASIA)

Managing Director
Dr. Markus Wächter

Academic Director
Prof. Dr.Dr.h.c.mult.Wolfgang A. Herrmann

Personal Assistant to Dr. Markus Wächter
Christina Ang

Faculty
Dr. Andreas Rau
(Head of Education and Research, Civil Engineering)

Dr. Yong Zhong Zhu
(Head of Education and Research, Chemistry)

Academic Services Department
Nicholas Tan (Manager),
Graduate Office

Eileen Tan (Manager),
Undergraduate Office

Academic Services Executives:
Zara Mohd

Academic Services Officers:
Nur'Ain Hamid
Vivien Ho
Monica Laurence
Calvin Leaw

Corporate Communications Department
Natalie Toh
(Manager, Communications)

Dana Loh
(Senior Executive, Communications)

Amelia Chang
(Manager, International Student Recruitment)

Timmy Zhao
(Manager, International Student Recruitment)

Punitha Nathan
(Executive, International Student Recruitment)

Industrial Relations and Continuous Education
Gary Ong (Project Manager)

Business Development Department
Michael Kleinhanz (Manager)

Editorial Team
Dana Loh

Address:
German Institute of Science and Technology-TUM Asia
10 Central Exchange Green
#03-01 Pixel Building
Singapore 138649

Tel : +65 6777.7407
Fax : +65 6777.7236
Email : info@gist.edu.sg
Website : www.gist.edu.sg

Printer:
The Neu Print Pte Ltd

MICA (P) 236/03/2008