



Taylor Vision



STAY CONNECTED





About us

Board

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Edition

Spring Edition

Editor

Michiel Zult

History

Taylor is the study association related to the department Precision and Microsystems Engineering of Delft University of Technology. The association was founded in 1988 to enhance the study experience of the students. The Taylor Foundation, in its legal form, was subsequently founded in 1992, making it an official organ in the TU Delft. During this time, the department changed its name from “Production Engineering” to the PME you are all familiar with.

In contrast to what many people think, Taylor is not named after the famous mathematician known for the Taylor expansion. It is named after the mechanical engineer Frederick Winslow Taylor, who was active in production engineering and industrial efficiency.

The logo of Taylor was inspired by the tip of an Atomic Force Microscope, an instrument that requires technology from all the divisions of the department.

Taylor aims to enhance the study experience of the students by: trying to improve the relation between the students and the department staff, bringing the students in contact with the industry, providing the department with student feedback about courses and, last but not least, organizing recreational events to de-stress from the hard working life as a PME student.





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workingatasml.com/students

ASML

Be part of progress



From the board

Dear reader,

Hello PMEers,

Before you know it, the second Taylor Vision is in your hands and you realize the third quarter is already at its end. It hasn't been long since the first Vision was printed either, but there has been plenty of report material to fill the booklet.

From an educational point of view, the third quarter was refreshing, focusing mainly on project courses rather than theory, and high-tech oriented instead of the obligatory ME courses. While kept busy with the many projects and courses, the students did a very good job at finding time to attend Taylor activities, of which there were many in the past months. Lunch lectures, network drinks, a Python course from señor Aragon and of course the CONNECT event, which was great fun to organize, albeit a serious challenge. Ten companies attended the event, none of which we had worked with before, and they were all eager to attend CONNECT 2.0 (patent pending) next year! On top of that there had been an overwhelming amount of appreciation and compliments from all involved, which felt very rewarding to us. From our side: a massive thank you to everyone who helped us set this up, assisted us during the event and of course everyone who joined us and helped making this the biggest Taylor event to date! You can read all about it further on.

The board is currently working overtime to make sure everything is on point for the Taylor trip in July with the help of 4 first year's students who are doing a great job! Weekly meetings, a fair share of input on ideas and a big load off our chest so we can keep on organizing activities for everyone else.

With spring making a grand entrance into 2019 with warm, sunny days, we're looking forward to the fourth and last quarter filled with new activities, right before the students have to put fun aside and give everything to make it to the summer holidays. From the board we wish everyone good luck with the last small pieces of lead, as we say in Dutch, and we'll see you in the walking hallways!

Cheers,

Maurits van den Hurk





Upcoming Activities

What a year this has been! I know there are still a few to-do's left, but we are definitely on the home stretch; and some good stuff is coming up! Time to start up the barbecues, grab some beers and enjoy the Dutch weather. But I know it and you know it: your pre-summer stint wouldn't be as magical without some Taylor goodies. So tell your friend to hold your beer, pop out your agenda and start writing like you never did before. And remember: be there, or PME-square!

Sioux company visit. May 17th, Nuenen Holland

Let me make this real easy for you: Sioux is cool, the event is free, you get a tour, you solve a case, eat pizza during lunch and you're back in Delft for your 3 o'clock coffee break. Oh and did I mention you get two Neve-points?

Lunch Lectures

- Demcon, 29 April. This lecture will focus on the opto-mechatronics side of Demcon.
- ASML, 8 May. Most of you know what ASML does, so let's focus on graduating or working at ASML.
- Demcon, 22 May. This lecture is more about the high-tech engineering side of Demcon.
- Vibes.technology, 29 May. This is a YesDelft! startup, to mix it up a bit.

Taylor Drinks

- Kings Day Drinks, 25 April. Please wear as much orange clothing as possible.
- Theme to be announced, 14 May
- Theme to be announced, 4 June

High-Tech Tea. May 7th, 13:30, PME square

For all my fellow dudes: you will have to skip this one. Lisanne and Emma are organizing the first girls-only Taylor activity for the HTE students but also for all female PME staff! So if you haven't registered yet, make sure to do so; I heard eating a lot of cake is involved. (Taylor can be held responsible for all and any leftovers)

YesDelft! Tour. April 26th, late afternoon, Delft

This is a Taylor first as well. Taylor together with YesDelft! Students is organizing a tour of three interesting startups at their headquarters in Delft. There is a limit of 15-20 students so when we send the registration link, be quick. And of course everyone attending is invited to the VrijMibo (YesDelft! Drinks) afterwards! The three companies will be announced soon.

Meindert Ras





Recent graduates

The following students have recently graduated from PME, congratulations to all!



Koen Schreurs, specialisation: DMN

The design of a compliant shape-preserving ring

Aaron Alkemade, specialisation: MSD

A new approach for print head movement: proof of concept for linear motor positioning system in an Ultimaker 3D printer

Arjan van Unen, specialisation: MSD

Dynamic response of centimetre scale parallel- and crossflexures

Ruben Salters, specialisation: MSD

Contactless positioning of thin flexible substrates Demonstrator design and validation of opposed air film actuators

Jan David Endtz, specialisation: MNE

Fabrication of polymer nanocomposites for application in luminescent solar concentrators

Wouter Jutte, specialisation: MSD

A 3DOF micrometer positioning stage that is low-cost and compact, using an Arduino micro-controller and PWM based amplifiers

Ary Jan Hoogerbrugge, specialisation: SOM

Topology optimization of coupled heat problems





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PME News

Our university is financially supported by the government. Through the European Union, money has been made available for the technology sector for the coming years, which we ever so gladly accept to build CO2-neutral study buildings with designer chairs and all that. Here is the catch: every 3 years, there is a so-called visitation from an independent jury that checks whether our university is still worth spending money on. They do this in two rounds: educational and research, alternating turns. In 2017, PME proudly passed the educational test, which means that next year (somewhere at the end of the year) the research side will be assessed. Autumn 2020 seems a long way, but the PME daily board is already having weekly meetings to discuss the plan of attack.



**Precision and
Microsystems
Engineering**



The jury has provided guidelines for the preparation towards the ‘moment suprême’ but they are abstract, in which PME sees as an opportunity to create their own story that they can tell with confidence. The two most important criteria are research quality and relevance to society. Research quality is an obvious criterium when assessing.. the quality of research. But it is quite a task to quantify the quality of a published paper; can a paper with little citations or views/downloads still be a good paper? On the other hand, what does the rate of acceptance say about the overall quality of the researchers? If I may quote Just: “when we have a 100% acceptance rate, we’re doing something wrong”. Quality also means benchmarking against other universities around the world. This is difficult for Dutch universities since we’re basically the only country that uses the structure of departments within a faculty. In other countries, such as the USA, there are different labs in each faculty, each managed by one professor and some PhDs, Postdocs etc. When the lab does not produce good research, it will be kicked out to make way for a new one. The resulting competitiveness certainly changes the culture compared to the Netherlands. Fun fact: the research visitation used to be graded with actual grades instead of ‘insufficient, sufficient or good’, but the internal competitiveness this brought about was considered harmful for the overall quality of the whole university and so they changed it.





PME News

Relevance to society will be an important topic this time. The scope of research done at PME is so broad that it will be difficult to link the research to society in a few words. For comparison: Biomedical Engineering links to health care, Transport Engineering & Logistics links to transport & infrastructure, etc. PME wants to be associated to sustainability. If you think about it: SOM works on minimizing the amount of used material with topology optimization, DMN develops energy harvesting systems, and the future prospects of high-tech engineering overall head towards function integration.

So this is in a nutshell what's going on in Just's head these days, even though his desk is covered with fancy compliant mechanism prototypes, and we'll see in about 1.5 years where PME stands and how we can improve!

Maurits van den Hurk



Activities

Lunch Lecture: Philips

Informative & Interactive

Lunch lectures from our department were always highly informative and when High-Tech giants like Philips made us a visit, it was an eye-opener. Aditya Mehendale, Senior Architect and competence leader for Sensing and Measurement began the lecture by walking us through the history and motto behind Philips innovation – making ideas work and the available options for a graduate to think upon. The session was live and interactive, we went through various sensors and saw a live demo of their recent work using his mobile phone. The MEMS course helped me to relate and understand the physics behind most of the sensors during the session, among which the Coriolis flow sensor got my attention. The information available was pact and crisp. We enjoyed it overall and looking forward to more of these! At last I want to thank the Taylor Board for making initiatives work!

Jishnu Suresh Subramonian





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Activities

Lunch Lecture: ACE

Tim Veltman from ACE joined us at the faculty of Engineering to tell us about the company. Tim himself is an accountmanager, so he has an overview of engineering.

ACE is an Engineering agency that focuses on the High Tech market. There are several locations from where they work, such as Eindhoven, Lummen and Gent. The cool thing about ACE is that they do offer prototyping and even manufacturing options. However, for real Hands-on experience you have to travel to Lummen (Belgium) where the manufacturing capabilities are housed. Furthermore, they place engineers at companies like ASML.

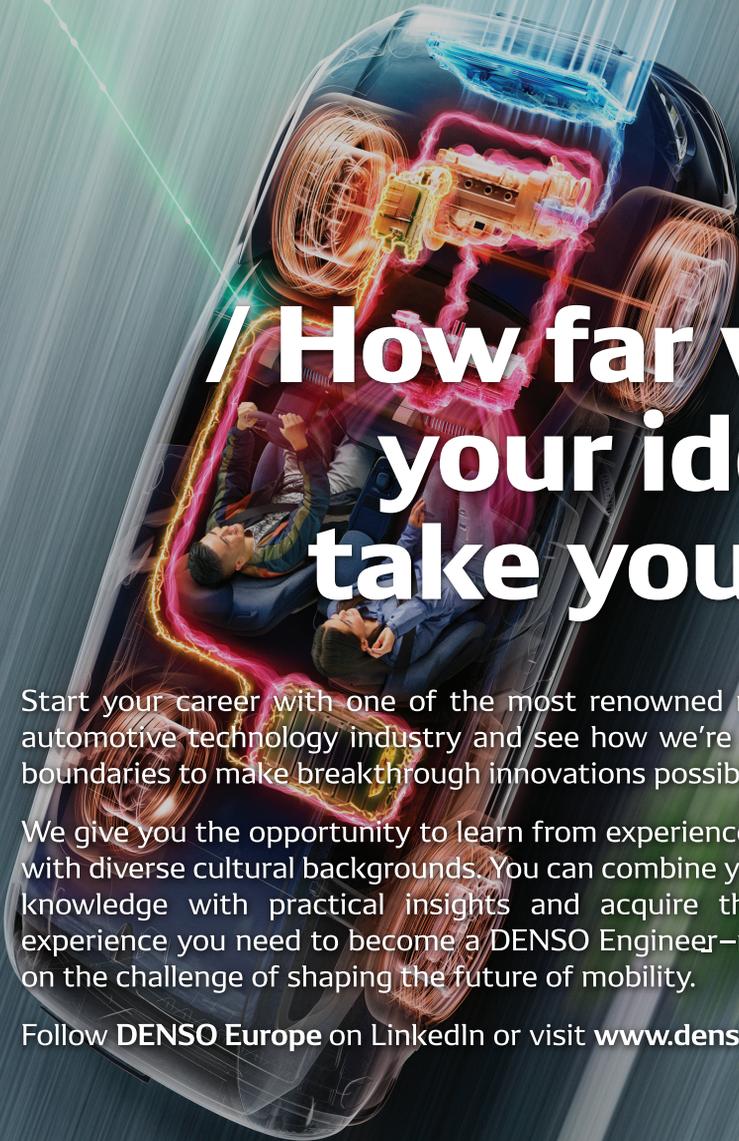
For internships there are some options, but as said before they themselves place engineers. They could set you up at ASML, but you could also go to ASML yourself. The thing about engineering agencies like ACE is that they sell engineering “computing power”. In other words, they get paid for placing an engineer at a company. Therefore the engineer is the product that is sold.

Where for an internship it may not be the most interesting place, another story could be told for work after graduation. If you’re not sure about the type of work you want to do and if you desire flexibility ACE could be a very interesting match. You could do a project at ASML and if it doesn’t fit you you can do your next project at a different company. It doesn’t even need to be a different company, it could also be another task / department within a company you tried before. If you want to learn about manufacturing you could follow a production process at the location in Lummen.

Shoutout to the guys at Taylor for providing an interesting guest to 3ME with a nice story! TLDR: Internships are a possibility but maybe not the most enticing. Job opportunities are very interesting and flexible.



Bas Kieft



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Activities

Python Course

On this day, the 19th of February, the Taylor board had organized a Python workshop for all HTE students. After a slow start, where people still could install the python software (Anaconda) needed, Alejandro started off with a couple of simple commands that everyone who uses python needs to know. By doing a couple exercises we practiced our python skills during the workshop and we got to know more about the similarities and differences between python and Matlab. For example, the for loop in python works a bit different than the for loop in Matlab. Furthermore, one can do a lot more in Python than is possible with Matlab. All in all, I found that there are quite some similarities between the programs but that the commands are just a bit different. After a few intense hours a well deserved break was announced and some delicious Eazie meals and some orange juice. After the break we got a quick workshop on how to use Python in the trading world. It was shown how to plot real life data obtained from a website and how to use that effectively. Obviously, everybody was writing along as we all thought that we could make money with it XD. All in all, it was a nice introduction to Python and all its possibilities!

Tjebbe de Lint



Activities

Network Drinks: DENSO

Last year, DENSO participated in a Taylor experiment: network drinks. The company comes over in the late afternoon, rather than during lunch, and gives a short introduction that raises questions and interest. Afterwards the group moved to 't Lagerhuysch to have a drink with the company to remove the sharp edges and talk about career opportunities on an informal basis. This turned out great and they were excited to come over again this year. They had reflected on last year to improve the experience, for instance they shortened the presentation to prevent the students' concentration to run out. The presentation itself consisted of four videos that explained the different markets that DENSO is active in. The most impressive part of the presentation was that there are more than 100,000 people working for DENSO today all over the world. For the networking part, they brought four people from different departments to make sure that everyone got a chance to talk with a DENSO employee, which lead to many people being enthusiastic about DENSO and their traineeship programme: Ignite. We had some bitterballen and beers and a great networking experience. Thanks to DENSO for coming by and inspiring us!

A dedicated HTE student





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Activities

Lunch Lecture: JPE

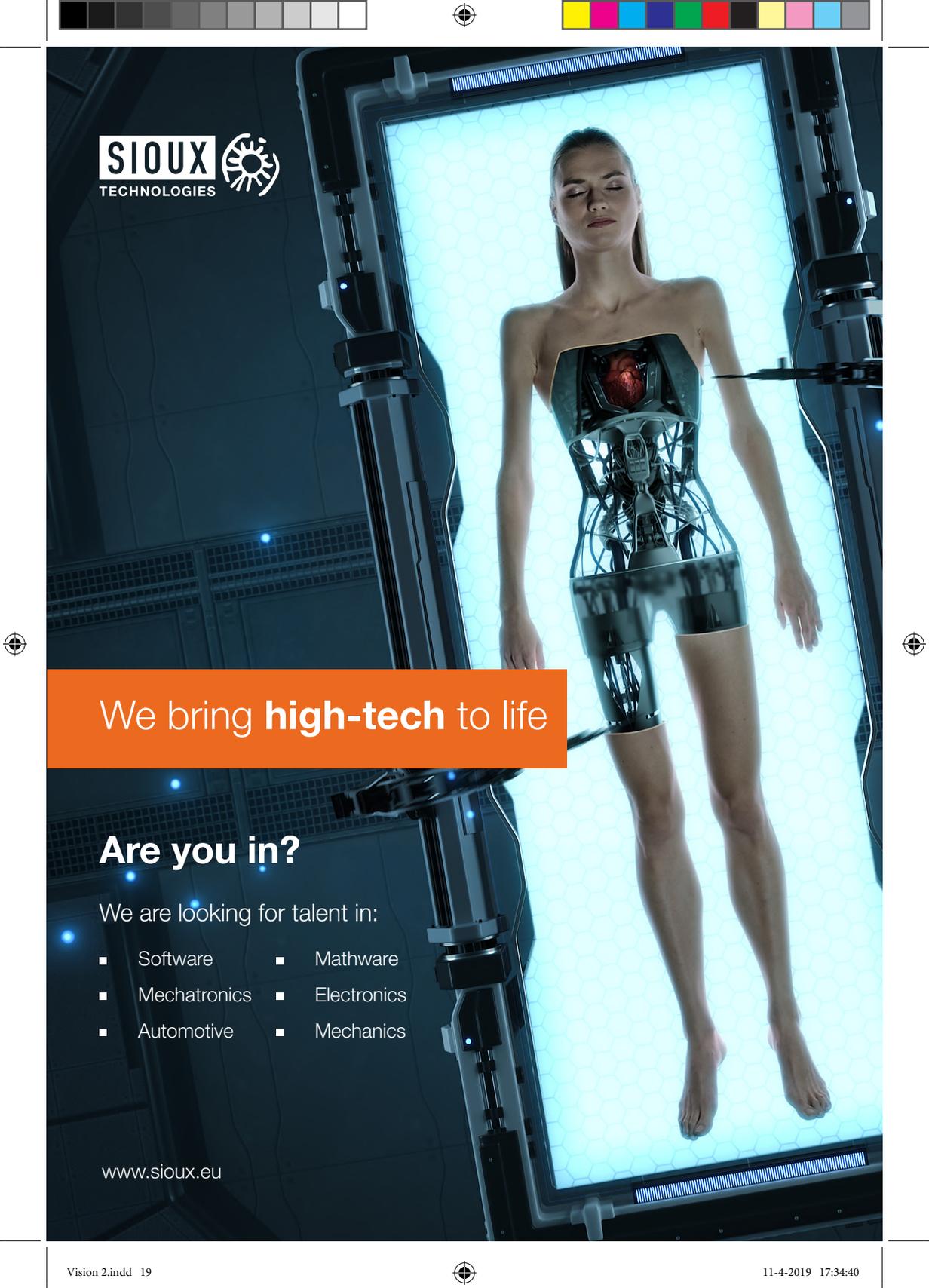
On February 27th Huub Janssen joined us to give a small presentation about his company JPE to a group of more than 50 interested THE students. In his talk he elaborated on what JPE does, what their vision is, what their mission is and what it is like to work there. The presentation ended with a lively conversation between Janssen and interested students who wanted to know more. Afterwards JPE's booklet with all sorts of precision engineering formulas and rules of thumb were handed out.

JPE is a company that focusses on becoming/ staying an expert in the field of precision engineering and helps its client with tailored solutions in their projects as well as delivering their own products and maintaining a publicly available precision engineering knowledge database. Janssen showed us examples where JPE has realised custom mechatronic and precision engineering systems all across the globe in particularly harsh environments. Examples of such a harsh environment included vacuum/ cryogenic environments. Janssen also showed us the strong and personal interaction within his team and the way his teams operates, as well as coworking with external companies.

This presentation was for many students a nice way to learn more about what high-tech industry is like and in particular gain more insight about what it is like to work at JPE. In the end, we are very grateful that Huub Janssen travelled all the way from Maastricht to Delft to teach us students more his company, precision engineering and for handing out their very useful booklet!

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Activities

CONNECT

On the 19th of March, the Connect event was held. The first network event in the history of Taylor. In cooperation with Young Instrumentation Network not one, but no less than 10 companies were invited. While the area of Eindhoven is already known for their high-tech industry, Delft is still a bit unknown. Luckily all of the invited companies were located in the neighbourhood of Delft. Due to the size of the Connect event it was held in the Lagerhuys instead of PME square.

After a cup of coffee the pitches started in one of the Lecture rooms. Every company had 8 minutes to tell about their focus area and what interesting projects they did. Enthusiastic as they were it became quite a challenge for them to finish their pitches in time. What became clear was that the region around Delft is the home of Dutch aerospace industry. A lot of companies did projects for the ESA, developed their own space equipment or made parts for large airplane manufacturers. But also manufacturers and developers of agricultural, industrial and of course high-tech equipment were present.

When the pitches were finished the information market started in the Lagerhuys. Combined with a few drinks and snacks, everybody had the chance to do some networking and score goodies. After finishing networking and with a full stomach from the delicious pizza it was time to go home.

All in all it was an interesting afternoon and it was clear the organisation putted a lot of time into making this event a success. Thanks Taylor board and Young Instrumentation Network for organizing this nice event!

Matthijs Zomerdijk









Marc Puzzles You

Warm up game:

3-	3-	20x		30x
		5+		
15x			1-	
	9+	7+		2+

The real deal:

15x			4-	5+	1-
24x					
1-	3+		60x	15x	
	9+			7+	
6x		1-			3+
			5+		

Objective / Rules

- Complete the grid such that every row and column contains the digits 1 to the gridsize.
- Each row and column contains each digit only once.
- A cage clue tells you the answer after the cage values have undergone the specified mathematical operation.
- The clue doesn't tell you which way around the digits occur, just the answer to the calculation.
- A digit can appear more than once in a cage.

Send your results to us and you might be rewarded with an awesome prize!



