

ENGINEERING A BETTER WORLD

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Engineering Has the Highest Enrollment in Israel



Figures published in the month of October by the Ministry of Higher Education show that enrollment in engineering programs is the highest among all disciplines for the first time ever in Israel.

More than a thousand students began their first year of college this year, and in all 5,500 students are studying in the various engineering disciplines and pre-academic courses of the college.

"Academic flexibility that allows for studies tailored to industry is needed in order to stem the shortage of engineers, which has been felt in the last few years," said the college's president, Professor Yehuda Hadad. "We must create 'experience centers' for the students,

investing our energies in connecting industry specialists to academia, and to bring into the folds of the faculty people who have an intimate knowledge of the demands of the high-tech industries. This will create a feedback cycle which will allow for a partnership between academia and industry to create another Israeli Mobileye."

"Apart from these things," Prof. Hadad adds, "we must work to increase the number of female students in the engineering disciplines.



18.3%
of total enrollments
in 5779 (2019)

In all the other fields, women are the majority on the academic benches, but in engineering fields they comprise only 27% of the students.

"The country has already declared its support for women in industry, and allocates funding to academic institutions for each female student enrolled in engineering. However, most women choose not to work in the field, such that investments of millions of shekels go down the drain and the country loses talented engineers. What is needed



34,661
students in
engineering

is national, comprehensive support with in depth thinking about how to integrate women from engineering disciplines in academia into the job market.

"The data show the incredible potential to reduce the shortage of engineers in the high-tech industry, but doing so requires a change in our thinking and a more intelligent allocation of resources – to the utilization of human capital for the benefit of the marketplace and its needs."

From the President's Desk



President of SCE – Professor Jehuda Haddad

SCE opened academic year 5779 with an increase of 8.2% in its student body. In the last few years, we have grown to become a leading institute of higher education in the field of engineering, guided by our world view – innovation, enterprise, and thinking outside the box.

We continue, every moment, to advance our knowledge and to instill excellence among all kinds of people and to bring prosperity to society by means of a multi-disciplinary education, enterprise, and field leading applied research.

The first semester has passed, and I am sending out my best wishes for the success of those students who find themselves in the awesomeness of the exam period. As we approach the coming semester, my wish for you is that you continue to renew, develop, and grow together with us to new heights. To the hundreds of new students joining us in the spring semester, I wish you all a successful and quick integration into the student body life at SCE.

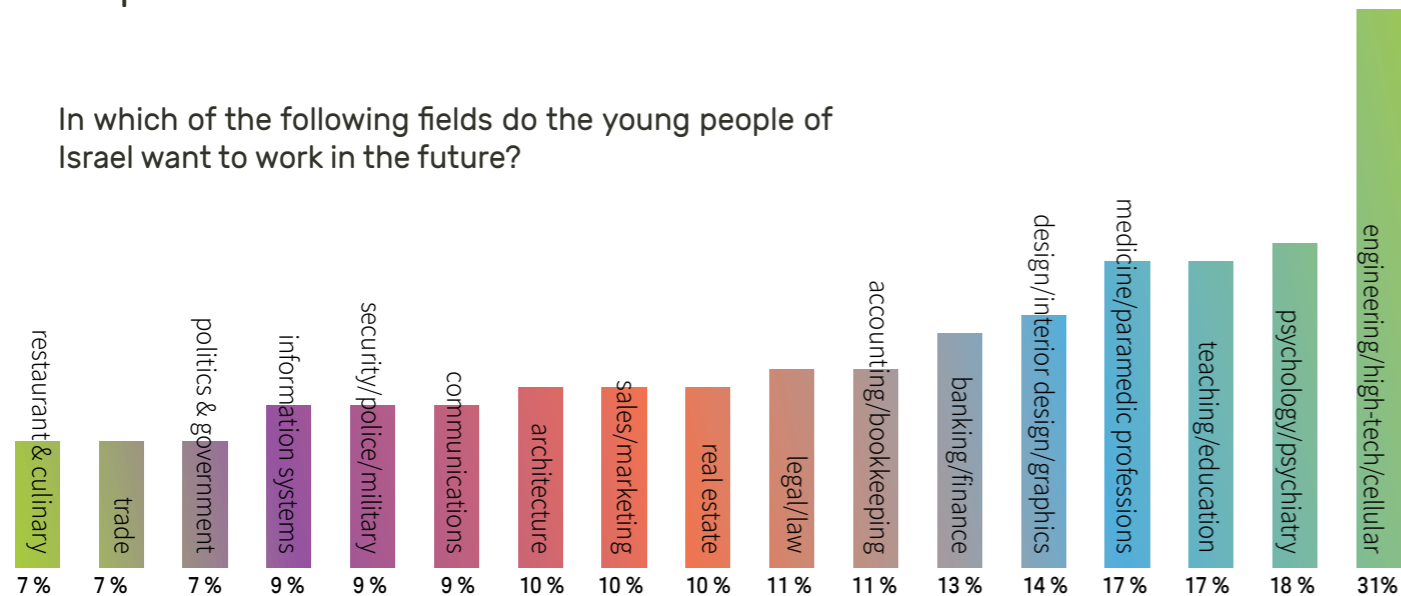
Sincerely,

Prof. Jehuda Haddad
President

Where are our students aspiring to work?

From a poll sponsored by the college, it turns out that engineering and high-tech are the most sought-after careers by young Israelis. 36% prefer to work in the public sector.

In which of the following fields do the young people of Israel want to work in the future?



From a new poll put out by SCE, in conjunction with the Geocartography Knowledge Group, from a sample of 506 people between the ages of 18-30 in Israel, most young Israelis prefer to work in the public sector (government offices) or in the private/business sector – 36% and 32% respectively. Only 8% aspire to work in the third sector, and 4% in the fourth sector (social for-profit businesses).

27% of young people prefer to be self-employed, while 62% prefer to be employees. In the Arab sector, only 39% want to be employees.

What factors motivate career choice?

The most important factor in choosing a place of employment is a high salary (43% for men and 30% for women). Among young people in the Sharon region, 41.5% said that a high salary was the most important criterion, as opposed to only 32% of young people in the South region.

Only 3% of young people indicated that contributing to society and making a social

difference was most important to them regarding career choice. Women, more than men, indicated that comfortable work hours and working close to home were important factors; men indicated, more than women, that the prestige and reputation of the profession was a central parameter in their decision.

It was further determined that for two-thirds of young people, working in the profession that they studied for or will study for was very important.

Which professions are young people choosing?

Engineering and high-tech are the most sought-after fields among young people, followed by psychology, education, and medicine. Transportation and agriculture are the least desired programs.

31% of youth aspire to learn and work in the fields of engineering and high-tech, but with a vast difference between men and women: 46% of men as opposed to only 18% of women. The most desired professions

among women are education (23%) and psychology (22%).

Women want to work in the legal profession or as lawyers (13%) more than men (8%). They also want to study and work in the medical and paramedical professions (21% as opposed to 11%).

Among men, after engineering, the most desired fields are banking and finance (14.5%) and real estate (14.5%).

In which of the following fields do Israel's young people want to work in the future?

Prof. Yehuda Hadad, SCE president: "It is interesting to see that engineering is the preferred profession among young people, and so many of them are aspiring to work in the public sector. That shows an increasing trend between the desire to work in technology and engineering and the desire to work in the service of the public, and to offer solutions to different kinds of people."



Making Technology Available and Changing Lives

Software engineering students at the college developed a system that helps people with cerebral palsy communicate with their environments. Oshrat Yosef and Maor Cohen, software engineering students at the college, for their final project, developed an advanced system meant to help people with cerebral palsy explain what they want to those around them. The system is installed on top of a tablet that displays pictures. The device identifies eye movements and other parts of the user's face, to determine which picture the user is focusing on and creates a verbal output expressing the desire.

Havatzelet Cohen, a lecturer at the college, directed the project in conjunction with TOM (Tikun Olam Makers), a non-profit organization that connects engineering students and engineers with people with disabilities, with the goal of working together to develop solutions for various difficulties.

In the words of the students, helping people with disabilities was something that was always close to their hearts. "My introduction to cerebral palsy began at a young age," tells Maor, "when my cousin was diagnosed with a particularly severe case. My wife, who works in special education, introduced me to an amazing young man named Shlomi, who has cerebral palsy. A strong bond formed between us. When we got to the point of a final project, it was clear to me that I was going to aim for one with meaning. When we received the offer from Tikun Olam Makers, I felt like I was on a mission."

Their partnership with TOM took Oshrat and Maor to the Hertzfeld School in Holon, for students aged 6-21 with muscular disabilities.

There the pair met Chaya, a 17-year-old student who has paralysis in her limbs. Because of a problem moving and focusing her eyes, Chaya cannot use a communications system based on pupil movements, which many people suffering from cerebral palsy use. They decided to try to help her.

"We understood that solutions based on pupil movements weren't appropriate for Chaya. Actually, these types of systems are inappropriate for about 60% of the students at the school. Cerebral palsy exists on a spectrum; sometimes there is a crossing or inadvertent movement of the eyes, and therefore the existing systems are not always relevant," explains Oshrat.

"The communication with Chaya, until now, existed only between her and her helpers. They would ask questions and glean the answers based on very small facial movements. It took time to come to an understanding of her needs. It is a very fine movement that only somebody who is very familiar with her can recognize and understand. Chaya was also aided by a special board installed on her wheelchair, with symbols for the answers for "yes" and "no," but this system provides a very limited solution."

The students accompanied Chaya for the duration of a year, together with her caregiver and the school's staff, with the goal of planning a system suited to her needs, which could also help others. The solution they proposed was based on identifying a few locations on her face, in addition to her eyes. "This type of identification makes our system unique and differentiates it from other systems in the marketplace. The system returns a response

only when all of the relevant facial points move together. For Chaya, for example, we chose to include the middle of her nose and other points on her face."

After mapping the requirements, the application was programmed accordingly. The application displays four pictures on the tablet screen, chosen based on conversations with the caregivers. By way of the pictures, Chaya can, for example, explain that she's hungry or ask for something to drink.

During the developmental phase, the students consulted with speech therapists in order to deal with issues regarding focus, and to design an interface that was a better fit for the students. In accordance with the requirements of the school, the system was designed to support multiple languages.

Among other things, the system can send out a warning to the cell phone of a caregiver if he/she is not currently in the vicinity. "This solution gives Chaya more independence, and the caregiver can be some distance away from her," the two explain.

Oshrat and Maor point out that one of the central advantages of their system is simplicity, its components, and the technological and economic accessibility: "most of the existing systems in the market are based on special programming, installed only on a non-mobile computer, with a special camera as an external component. That's a very complicated system which is not particularly comfortable to use, and very expensive. It requires a lengthy bureaucratic process in order to obtain one – a process that is exhausting for the children and their families."

Is the Baby Still Hungry?

Mechanical engineering students developed a device that makes it easier for mothers to rely on breastfeeding: the device measures the amount of milk the baby drinks during nursing and helps determine if the baby has had enough



Many breastfeeding mothers talk about the difficulty in knowing if the baby had enough milk or if it is still hungry. A feeling of helplessness on this subject also gripped the wife of Matan Sheli, who was facing the challenge of his final project in the department of mechanical engineering. Matan and his college mate, Eran Hayo, at the direction of Dr. Eitan Fisher and Ms. Natalia Dvoskin, decided to develop a device for the measurement of the amount of milk a baby consumes during nursing.

After they researched the subject, Sheli and Hayo put together a small device that mounts onto a standard silicon nipple, with sensors able to identify the amount of milk the baby consumes. The information is transferred to an application that immediately updates the user.

"My wife gave birth a year ago and after two days of nursing the baby cried a lot at night,"

explained Matan. "My wife was frustrated that she didn't know if the baby was hungry or if something else was bothering her. We chose this as our final project after discovering how widespread this problem is."

Eran Hayo explains: "We explored the subject of nursing, and what happens to the woman's body from a physiological perspective. We wanted a simple solution that wouldn't make nursing more difficult, and would be comfortable to use. In the end we developed a simple system which allows for the measurement of the amount of liquid consumed during the gentle sucking action. The device sits on the nipple, doesn't bother the baby, and measures the amount of milk that passes from the mother to the baby, for the application."

In their words, the device is designed to prevent a situation whereby the mother switches to feeding from a bottle because

of an inability to measure how much the baby drank, and the concern is that the baby didn't drink enough. They hope that the development will allow mothers to trust the natural nursing process.

Dr. Eitan Fisher: "When the students raised the idea, I thought that it was a complicated project and unlikely to be finished within one year. I tried to lower expectations and told them that it's a good idea, but not necessarily one that can be brought to fruition. However, Matan and Eran were extremely diligent and no stone was left unturned in the research or execution of the idea. At the end of the year, they presented an enlarged model of the apparatus, as well as one built to the required size, proving the feasibility of the project in a miniature size. The project would not have been possible without their unwavering determination to find a solution for a real problem, with the potential to help many, many women."



SCE Prepares the Next Generation of Industry Leading Innovators

The Entrepreneurship and Innovation Center offers a wide range of programs that expose the students to challenges, technology, and needs that change at the speed of advanced industry

Dr. Neta Kela

The Entrepreneurship and Innovation Center (EIC) at the college was established with the goal of encouraging entrepreneurship and innovation among the students and to give them the tools and experience necessary for the establishment of an independent enterprise, and for the in-house development of entrepreneurship in the future work place.

Every year, the pace of innovative technological development moves even faster, while shortening the expected life of the companies in the marketplace due to their inability to keep up. The ability of a company to innovate is the key to its success in the market, and companies need to recruit workers with skills in this area.

The Entrepreneurship and Innovation Center has various programs designed to prepare and lead the next generation of engineers as leaders of industry innovation:

Engineering Program+

An annual program with the goal of exposing the student to the foundations of entrepreneurship and interdisciplinary innovation, using basic knowledge and tools.

Engineering Innovation Program

In this program, the students contend with the rapidly changing needs and challenges of the industry with the help of mentors who accompany them along the way, while acquiring the skills to develop in-house innovation and entrepreneurship in the course "Leaders of Innovation."

The Accelerated Program

An annual program, a continuation of the "Engineering Innovation" program, which challenges the students to find a solution to a problem/challenge in the industry. Company representatives and business

mentors guide the students in thinking about the technological, engineering, and business challenges.

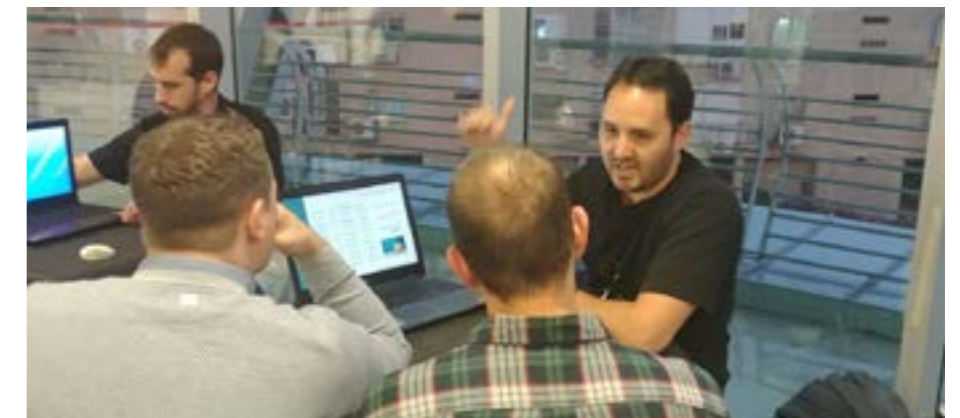
Challenge Program

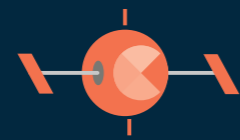
In this program, the students are exposed to different companies and industries, learn about existing challenges and offer solutions.

In the current cycle, the students work to find solutions in the personalized medical field in conjunction with the Asuta Ashdod Hospital. Participants in the program developed means for personalized engineering which allowed for faster, more efficient, and more exact treatment. Other companies acting in part with the program are Hamat, CYou Retail, the

Robotics company "Robotican," DiaCardio, and Persimio.

Over the course of the semester the students attend a broad spectrum of lectures by speakers from both within the Entrepreneurship Center and outside of it, with some 300 students participating. The students learned about innovative technology and about the world of entrepreneurship in lectures by Liran Weil from the satellite company ISI, Oren Dayan from the digital marketing company DIFF, Omri Yalovsky from the company YaloStar Holdings, Shavi Dagan from the company CYou Retail, and Nissim Sofer and David Alkehar – innovation leaders from the communications and electronics unit in the Air Force.





What is the ideal price for parking?

Prof. Baruch Keren and Prof. Yossi Hadad developed unique models, based on queueing theory, to set the correct price for parking in each city and each parking lot

One of the problems caused by the many cars in the world is a severe lack of parking, which primarily exists in city centers. Cars are parked 95% of the time and take up a lot of space. Researchers found that if all the cars in Europe were concentrated into a single parking lot, it would be the size of Belgium.

Parking prices which are set too low will cause an excess of demand for parking, parking lots will be excessively full, cars will remain parked for longer, there will be lower turnover, and will result in reduced income from public parking resources, and will detrimentally affect the surrounding businesses. The residents and consumers will, at the end of the day, bear the parking costs in the form of higher taxes and higher prices for goods and services.

If parking prices are too high, on the other hand, fewer parking spaces will be utilized, revenues from parking will fall, and local business will suffer.

Therefore, the choice standing before the decision makers is between direct payment for parking, by the drivers, or indirectly - by the public, or another party that subsidizes the parking.

Drivers, of course, prefer to park for free, even if free parking isn't actually "free". Free parking causes an excess of cars on the roads as drivers search for an open parking space, as well as other negative aspects previously mentioned. A parking cost that is too low transfers the real cost of parking from the

transportation sector and from the actual users of the parking, to the general public. A direct payment for parking is considered more fair (whoever parks, pays), more equitable, and more efficient.

City management, municipalities, and commercial centers need to determine the correct price for parking in garages and on street spaces marked in blue and white. The correct price will facilitate proper utilization of existing parking spaces, will ensure with a high degree of certainty regarding how many parking spaces are available at any given time, and will maximize parking revenues. Revenues from parking need to finance activities that benefit the entire public, which indirectly pays the cost of parking. Therefore, defining the correct price for parking and establishing the correct payment model are very important issues.

Prof. Baruch Keren and Prof. Yossi Hadad from the Industrial Engineering and Management department developed a few unique models, based on queueing theory, for setting the optimal price of parking in garages and in cities. The models make it possible to set the optimal price for parking when the pricing method is based on length of stay in the space (per hour), or when the payment is for entry to the garage (whereby the driver can then park wherever she wants without any additional charge).

The models make it possible to discriminate between two groups of drivers and to offer, for

example, reduced pricing for local residents. They also allow the decision makers to set one price if the goal is to maximize revenues from parking, or a different price in order to ensure a given level of occupancy in garages (for example, 90%) – in order to achieve a higher level of utilization of the available parking, while at the same time maintaining enough vacant spaces, in order to allow for additional drivers to arrive.

In order to demonstrate the applicability of the models, the researchers presented their analysis of a municipal garage in downtown Be'er Sheva as a case study. It turns out that the price charged in the city (5.7 NIS per hour of parking) is significantly below the desired rate, which leads to a parking shortage, to the detriment of businesses around the parking lot (since customers encounter difficulty reaching them) and to municipal revenues.

The models can be tailored to each city and each garage where there is a parking problem. The future development of advanced communication and computing devices will allow for parking prices to be changed dynamically and adjusted to changing demands for parking throughout the day, week, during holidays, or as the situation requires.

The research was accepted for publication in the prestigious periodical "International Journal of Process Management and Benchmarking" and is expected to be published soon.

Don't the Guidelines Require It?

The Ministry of Transportation needs to stand by its own guidelines and see to it that main highways are divided by safety barriers

Prof. Wafa Elias

According to the guidelines set forth by the Ministry of Transportation, a main two way highway needs to be separated by a barrier, with two lanes in each direction.

Even so, in many places throughout the country, especially in the locations where fatal accidents have recently occurred, the roads are not built according to these guidelines.

Even if human error causes an accident, these guidelines are meant to – and can – save the lives of those involved. In the heart wrenching case of the eight members of the Atar family, who were killed in a head on collision on Highway 90, it seems reasonable

to conclude that if there was a barrier separating the lanes, the cars would not have collided in this fashion.

To be sure, there is human error, and there are things that distract a driver's attention. Even when a driver drives according to the law, a second of distraction towards the radio or a glance at "Waze" could lead to disaster – which could be averted if the roads were actually built according to the guidelines.

Similarly, Highway 90 is a long and straight road, which can dull alertness, causing a driver to drive on "auto-pilot," which causes drowsiness. Therefore, steps must be taken to help maintain driver alertness,

like rough patches on the road at certain segments or creating small curves and other characteristics of the infrastructure.

The Ministry of Transportation contradicts its own guidelines. If the steps in order to properly separate the road are not taken, then the description of the road needs to be changed, such that it is no longer considered a main highway. Accordingly, the maximum speed must also be reduced.

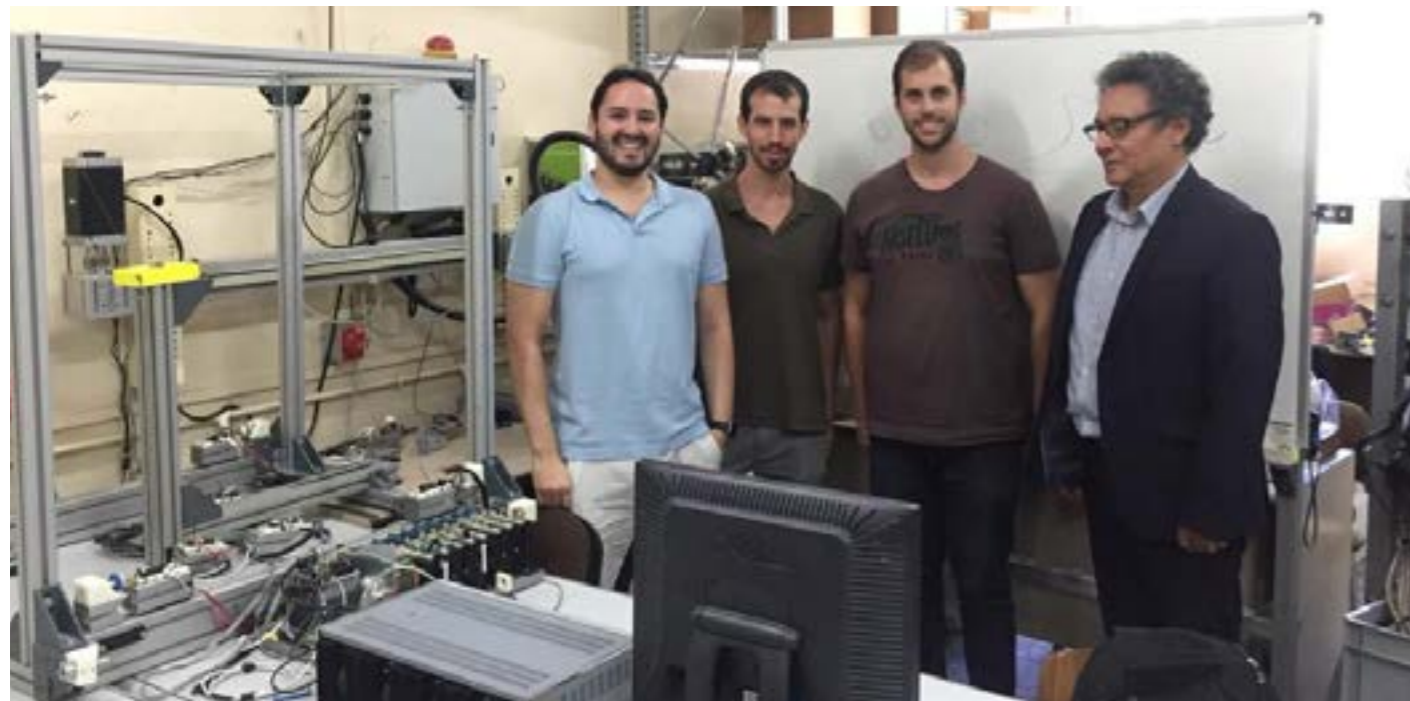
The faculty of Civil Engineering teach our students, the engineers of the future, that guidelines such as these exist. The students themselves are astonished when they don't see them implemented on the country's roads.





They Came Back from Spain with a Final Project

Partnerships between SCE and universities around the world continue: students from the mechanical engineering department worked on their final project in Madrid.



Daniel Bern and Eyal Zimmerman, fourth year mechanical engineering students, returned from a summer semester in Spain, where they worked on their final project in conjunction with a partnership program with UPM (Madrid Polytechnic University) in Madrid.

Bern and Zimmerman flew to Spain at the end of their third year for a three month semester during which they worked on their final project. They were accompanied by Prof. Rocca Saltarin and Alejandro Rodriguez from UPM and Dr. Eitan Fisher and Yogev Pinhas from SCE.

The students researched parallel winch robots - a mobile robot with arms made out of cables - for their work. They studied the robot's controls, speed of movement, its work space in different situations, and the required level of precision of the cable movements.

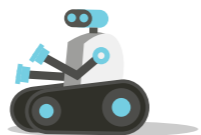
As part of the final project, the students improved the robot's operating system and built additional parts with a 3D printer.

Dr. Eitan Fisher: "The cooperation with UPM began with a pair of scientists who immigrated to Israel from Mexico who taught at the college, Dr. Moshe Mendes and Dr. Ya'ara Garcia. It lets our students work in a new space, to learn different theories and to meet lecturers and students who work in different ways. We were happy to see that the product that the students put out was done so at the highest level possible."

"We were given the opportunity to do something new and unique," said Daniel Bern and Eyal Zimmerman, "in the three months we spent at the Institute of Robotics and Automation at the university, where we met our Spanish director Prof. Saltarin and all

the students who helped us with everything. We did a lot of theoretical work. It's new to us, and we had to research it ourselves. We developed a feeling that we could succeed, and we solved problems by learning various programs and scientific theories.

"They received us so warmly, helped us with any problem we had, and we made new friends," they said. "We both received a grade of 'excellent' on our project, which we will present at the next project conference, during mechanical engineering week in July 2019."



"An Experience which Designs and Builds"

Mor Goren, a software engineering student at the Ashdod campus, returned from an experiential semester at the University of Magdeburg, Germany and wholeheartedly recommends participating in a student exchange.



In the beginning, when the call came out, I did what most students did: I immediately wrote it off as irrelevant to the subject of my life. I had too many obligations, in school and outside of it, and I didn't think that I could just leave in the middle of the year. But something happened when I met the Dean. He recommended that I drop everything and just do it. After all that I experienced, I was very happy I listened to him.

I'm Mor, a 21-year-old software engineering student at the Ashdod campus. In the middle of last year, I answered the call for a student exchange in Magdeburg, Germany. I was the only one from my campus, but I knew that two more students from the Be'er Sheva campus were also coming.

At the beginning of each semester, a week is dedicated to the students in the program, whereby they are given an introduction to the city, a taste of the German language, and the opportunity to meet other students. There I met Johnny and Johnny, the first from Canada and the second from Georgia in the US, and we spent the first month together. We still keep in touch. I also met students from Greece, Brazil, Pakistan, India, and other countries.

After the Israeli students arrived, we started going to class together. I took five classes, two with them. The level of study was high, the lecturers and assistants were very nice, and somehow everybody knew about the little group from Israel.

We became familiar with the city more and more. All the students from the program lived in one building, close to the center of the city, such that if we wanted to get out for some fresh air it was easy. We especially liked to go to the nearby lake, a relaxed pastoral setting perfectly suited for those times when you want a breath of fresh air. Thanks to the scholarship we received, we could take little trips throughout the semester. We visited Spain, Czech Republic, and Hungary.

In the middle of the semester, they told us that we chose a particularly special year to

study here, for there was a cultural festival in Magdeburg. We had the opportunity to set up a booth and exhibit our take on Israeli culture and our way of life. So, we set up a booth with games, drinks, and an individual portion of Shakshuka for all 200 people attending the festival. We also had time to go and see the other booths and to meet new people, many of whom have an affinity for Israel. The festival was a success and left a taste for more!

I recommend to anybody who is ambivalent about an exchange program to just do it! It is an experience that shapes you and builds you, with tons of other bonuses on the side. If I would have stayed in Israel, I would have completed another semester, the same way. Instead, I studied abroad, had a bunch of experiences, met people, and mainly - I learned more about myself. Strongly recommend!

ACHEMA 2018 “An amazing and enriching experience with an incredible team”

Outstanding students from the chemical engineering department were sent to visit the largest trade show in the world for innovative technology in the chemical and biochemical industries



In June, Frankfurt hosted the international ACHEMA tradeshow, which takes place once every three years. ACHEMA is the largest tradeshow in the world for innovative technology in the chemical and biochemical industries. As such, it attracts thousands of visitors from around the world and creates a direct platform to introduce leading companies with engineers.

The chemical engineering department sent four outstanding students to the show this year: Shira Biton and Shlomi Biton, from the Be'er Sheva campus, and Shloma Cohen and Noam Schnarch from the Ashdod campus. Dr. Kfir Ben Harush accompanied the four.

The head of the chemical engineering department at the Be'er Sheva campus, Dr. Ariella Berg, and the head of the chemical engineering department at the Ashdod campus, Dr. Michal Goldenberg, expressed their thoughts on the importance of the tradition of giving students the opportunity to visit the show: “There is no doubt that, for the students, the experience is something truly special, and not to be taken for granted. This is another concrete example of the uniqueness of the college, as opposed to other academic institutions.”



Shloma Cohen tells: “We spent a fun and enriching week. We learned and saw a wide range of advanced systems in the chemical and biochemical industry, among them reactors, containment systems, pumps, and more. It’s in a massive site, and even 7 days wasn’t enough to see everything. We got to know a lot of companies and technologies, we got an impression of everything, asked questions, and at every booth we got (many) souvenirs! Among others, we also visited the global company “Pfouder,” which specializes in manufacturing reactors out of glass, and we watched each stage of

the process. The visit was an amazing and enriching experience, with an incredible team. Thank you so much to the college for choosing us.”

Shira Biton adds: “We were exposed to a broad range of companies that offer services to factories, laboratories, and more. We really enjoyed being exposed to the processes and equipment that, until now, we had only learned about theoretically, and to receive explanations to all our questions.”

We are looking forward to the next ACHEMA in 2021!

SCE Represented Israel at the International Science and Technology Festival in Mumbai

Participation in the festival is part of a broader partnership the mechanical engineering department shares with educational institutions abroad.

Last December, SCE represented Israel in the annual science and technology festival “TechFest,” put on by the Indian Institute of Technology (IIT) in Mumbai. The delegation included Prof. Iko Avital, Head of the Product Planning and Design program, and eight 4th year students from the mechanical engineering department on the Be'er Sheva campus, specializing in mechatronics and product planning and design.

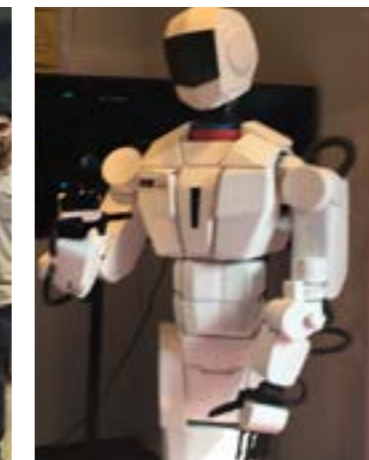
The IIT Science and Technology Festival is the largest of its kind in Asia. Some 175,000 students, from 2,500 institutions throughout India, and 500 institutions throughout the world, and more than 7,000 faculty and corporate managers all come together to take part. Twenty countries put up display tents at the festival, among them the US, Russia, Japan, Holland, Spain, Germany, Singapore, and Hungary.

The festival was focused around the cultivation and deepening of the concept of creativity in engineering and design, and included a diverse range of activities: talks on the subject of artificial intelligence and learning machines, robot and machine competitions, presentations on advanced

projects from the academic and industrial world, and more. The festival events were also an excellent platform for connecting with universities, technological institutes, and engineering colleges in other countries. The SCE delegation presented a project on an autonomous robot in the water, and a design for an innovative product intended for rape victims. The interest in the Israeli booth over the five day festival was great.

Dr. Gedaliah Mazur, Head of the Department

of Mechanical Engineering, Be'er Sheva campus: “Participation in the Mumbai festival is part of a broad partnership the department has taken part in over the years with a few academic institutions overseas. The students who are sent to represent Israel are outstanding students, who placed at the top in international competitions which the department organized as part of Mechanical Engineering Week 2018.”





“The Next Thing” Student Internships in Industry

The Center for Career Development, in addition to the variety of programs it offers, is adding a new program, offering placement in internships while still in school, and an academic course for preparation for the job market.

As part of the activities for the benefit of both our students and alumni, these past 12 years the Center for Career Development has been aiding their successful integration into the job market at every phase of their studies and careers.

Starting in their 3rd year and throughout their careers, the Center offers students and alumni counseling, direction, and assistance: workshops for developing a career; personal counseling on writing a CV; personal simulated training before a job interview; career course; preparation workshops for evaluation centers; workshops for using the social networking tool “LinkedIn” to find a job and make contacts.

The Center works in conjunction with the industry to integrate students into the workplace while they are still studying, using a variety of tools: a computerized system for a database [sce.wanted.co.il], spotlight sessions, annual job fair, and more.

For the spotlight sessions, different companies present their operations and the career possibilities for students and graduates. In the first semester of 5779, there were sessions with Applied Materials

(recruitment intended for female electrical and mechanical engineering students), the Logistics Division for the Israeli Police (recruited 4th year students from the civil, electrical and electronics, mechanical and industrial and management), and Tnuva (arranged a gathering to recruit industrial and management graduates).

A new program opened in the academic year 5779: “The Next Thing” – student internships in industry. This is the social program directed by “Aluma,” an organization that helps students find jobs relevant to their field of study by placing them in internships while they are still in school, and with academic courses that prepare them for the job market.

The practical part of the program includes an internship in a leading organization, which allows the student to accumulate practical experience while still studying towards her degree, with the unique opportunity for personal instruction, gaining professional knowledge, and the possibility to establish a relevant network of contacts in the professional world. The apprenticeship is for 120 hours.

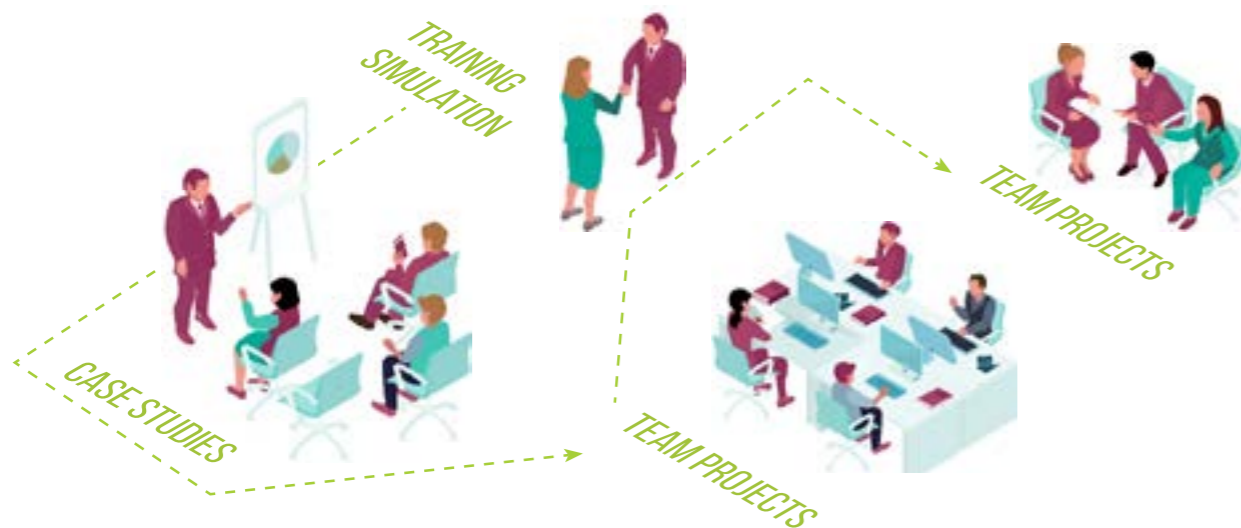
For the theoretical part, 3rd and 4th year students participate in a general academic course – a career in the 21st century – which accredits them with 2 course credits, and prepares them for the job market. The course content includes writing a CV, preparation for interviews, negotiating, effective self-management, career planning, and more.

The program began this year in the first semester at the Be’er Sheva campus and 23 students participated. In the second semester the program will take place at the Ashdod campus. The student interns will be integrated into the following companies: Osem, Tara, SodaStream, Epstein, Albad, dbMotion, Eltel, RoboTiCan, and others.

For more information about the program and to set an appointment, you may contact the following:

Yafa Danieli – Head of the Center for Career Development, Dean’s Office, 08-6475759, yafad@sce.ac.il

Noa Sahar – Coordinator for the Center for Career Development, Dean’s Office, Ashdod Campus, 08-8519362 noasa2@sce.ac.il



New at SCE: Sub-internship in nanotechnology is on its way

Three departments at the college – chemical engineering, electrical and electronic engineering, and mechanical engineering – have come together to deliver a unique multi-disciplinary learning program.

After long months of preparation and preliminary work, just before the end of 2018 – at the opening gathering which took place at the Be’er Sheva campus – we are excited to present the inaugural nanotechnology sub-internship!

The last two decades have created a revolution, which is great in technological prowess but small in the dimensions studied – it is the nanotechnology revolution. This field deals with processes in physics, chemistry, and biology which occur on a scale of millionths of a millimeter. This is the art that is the manufacturing of materials, instruments, mechanisms, and components at the molecular level.

Intense research and development exist, primarily, in fields of nanomaterials, nanoelectronics, and nanomedicine, and are creating a palpable revolution. The affects of this revolution are expected to penetrate into every field of human activity and create

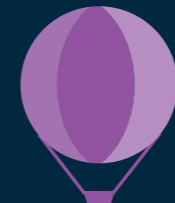
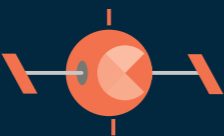
a significant change in our way of life. Many applications based on nanotechnology are found in medicine, electronic products, in food, solar panels, gas, gas cells, batteries, equipment for space vehicles, equipment for air and water purification, chemical sensors, sporting goods, clothing, and more. An influx of new applications is expected in the coming years.

In order to set our students on the nanotechnology track at the forefront of research, they take courses that deal with advanced nanotechnology and are exposed to knowledge and specialized expertise which are utilized in the industry. A sub-internship in nanotechnology is the right choice for curious and creative students who are interested in exposure to a field at the front of world research, with Israel among the leaders.

Beyond exposure to nanotechnology, the learning that takes place in the sub-internship is done with a view to multiple

disciplines. Students from three departments – chemical engineering, electrical and electronic engineering, and mechanical engineering – study together, cooperate, and acquire knowledge about the concepts and principles of the three disciplines. On their journey, in the industry or in research, the foundations learned here will be of added value to the basic studies of the mother program.

The program of study includes three courses: “Introduction to Nanotechnology” by Dr. Yoav Biton – 2nd semester, 3rd year; “Nanotechnology” by Dr. Moshe Zohar – 1st semester, 4th year; and “Nanoparticles” by Dr. Ariella Berg – 2nd semester, 4th year. Along with the theoretical studies, experiments will be performed at the SCENC center for nanotechnology, which has advanced equipment. In addition, students will make extensive use of MATLAB for applying and testing theoretical models, complex calculations and data processing.



Study Visit to the University of Magdeburg

Dana Manor and Pnina Bitan summarize their visit to the university in Germany, which works in partnership with SCE for the Erasmus+ project

Erasmus+ is an EU program supporting the advancement of higher education, training, and youth education. The program, intended to improve the higher education systems in participating countries, is based on international academic partnerships to advance internationality, innovation, and excellence.

One of the tracks that it offers is the mobility track, which allows for student and faculty exchange and opportunities to learn, teach, and gain experience while studying in an institute of higher education in a foreign country.

The college has mobility agreements for students and faculty with the University of Magdeburg in Germany. Within this partnership, with the goal of being exposed to academic institutions in the world and to broaden the faculty of the college, Dana Manor, student counselor and social coordinator for the Dean's office, and Pnina Bitan, visited the head of support and computing equipment at the University of Magdeburg.

There are nine departments in the university: mechanical engineering, process engineering, electronic engineering, computer science, mathematics, natural sciences, medicine, economics, and an integrated faculty for human resources, social sciences, and education. It is considered a medium sized university with about 14,500 students, and specializes in attracting foreign students.

Dana and Pnina met with many parties, with the goal of meeting and learning about the

management of the institution: dormitory coordinators and counselors, those responsible for the support structure for studying – with an emphasis on emotional support; student counselors from foreign countries; information systems; department heads who structure their programs similarly to those at SCE; students from the university and students from SCE learning in Magdeburg on student exchange.

Apart from these, they are exposed to the dual influences of the city and the university, on days open to the public and science evenings.

Magdeburg boasts the son of the city, the 17th century physicist Otto von Guericke,

who researched the physics of vacuums, for whom the university is named. In the city museum von Guericke's experiments are on exhibit.

It's a student town, beautiful and relaxed, and offers many young people from the breadth of Germany and the world, a window into the academic world. The university sits in the heart of a residential neighborhood and allows the city residents to take part in the student experience – in the atmosphere and at non-required academic gatherings. There is a strong global experience and it is expressed even in the cafeteria, where they have chef exchanges from around the world and Germany.





Come for the experience, stay for the engineering

Some 300 students from the 12th grade took a tour through SCE and heard about the academic possibilities at the college in the coming year

Within the framework for project "Seniors in Blue and White," more than 300 12th grade students took a tour through the college. The visit happened in conjunction with the college and the Jewish Agency. Youths met with researchers and students, heard about the study programs and about preparatory courses for engineering, and took tours of laboratories and classrooms.

"Seniors in Blue and White" is the largest project the Jewish Agency is involved with, in conjunction with "The Israel Experience,"

which brings Jewish youth from France on educational tours in Israel. In the project, students arrive for a seven day tour in Israel, during which they are exposed to study opportunities in higher education.

Those registering at the college will live together in apartments in the old city in Be'er Sheva. In their first year they will take preparatory courses and participate in remedial projects, and in their second year they will start learning for their degree in one of the departments. It should be noted that in recent years there

has been an increase in the number of French students who have decided to learn in Israel in general, and at SCE in particular.

Dr. Avshalom Danoch, Head of Academic Administration and Assistant to the President: "We are proud to host such a great group of kids from France, who chose to come to us out of an interest in studying engineering in Israel. For years, groups of young students have come to us from France, which speaks to the high level of trust in our college as a leader in fields of science and technology."



SCE Presents: "Man is Nothing More than a Landscape View of His Birth"

An exhibition of the drawings of artist Talma Tamari, recently displayed at the college, shows work from the life and defining moments in the life of the artist

In the College's "Jon Gallery" an exhibit on the new drawings of artist Talma Tamari opened at the end of December. Under the title "Man is Nothing but a Landscape View of his Birth," drawings about the artists childhood, from her personal life, and various moments in the life of man.

Tamari, a resident of Meitar and a former educator, revealed her love of creation when she retired. She paints using the layers method, whereby the background is made from acrylics and then oil is overlaid, such that each layer of the painting is painted over the previous one.

Mati Mann, curator of the exhibit: "This is the first exhibit in the Jon Gallery in a long time, and I'm happy to announce its return to action with the works of Talma Tamari. The exhibition is made up of three parts: the first deals with the desert life of the Bedouin in the Negev, the second is humorous, and the third represents general inanimate objects. All the creations deal with moments that design our personal lives. As curator of the college, who determines which of the artistic creations which are asked to be exhibited, I am happy to say that the level of this exhibit is very high."

These days, the Jon Gallery presents the work of Haim Bloomberg, on the subject of "Houses and Characters."



Engineering at the Bar



Students and guests commandeered Pub Bialik 26 in the "Beit District" in Be'er Sheva, for a workshop lecture as part of project "Engineering at the Bar." The project is a partnership between the college's Student Union and ICL (Israel Chemicals Ltd.), as part of its connection to the community.

Dr. Oshra Sapir from the chemical engineering department tells about "engineering and chemicals behind beer" – its origins and important function in ancient cultures such as that of the Vikings; the manufacturing process; the status of beer as it pertains to health, gender, and science; and how all these things come together in chemical engineering.

Dr. Moshe Zohar from the department of electrical and electronics engineering spoke about "the science of small things" – nanotechnology: what is the nanometric scale? Can nanometric things be seen with the naked eye? What are the expected developments in the field of nanotechnology?

Dr. Nir Trebelsi from the department of mechanical engineering gave a talk on the subject of "engineering treatment" – on the fascinating bond between medicine and engineering.

Dr. Dagan Bakun Mazor, head of the department of civil engineering at the Be'er Sheva campus, talked on the issue

of "70 years of earthquakes": what is an earthquake? How is it formed? What can we learn from earthquakes that happened in our region's past? Can we predict coming earthquakes, and now can we guard against them?

"I enjoyed the evening and the special opportunity to create an intimate setting beyond the campus walls," said Dr. Sapir. "People streamed in, the bar was packed. My students came – first year students through graduates, who these days are working toward their doctorate degrees. It was impressive and heartwarming. I believe that there is something very special sharing an evening of beer, together with the lecturers."

