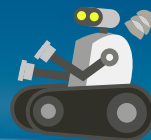
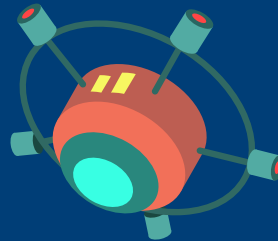
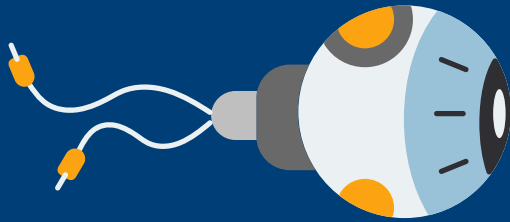


# ENGINEERING A BETTER WORLD

Magazine of the Sami Shamoon Academic College of Engineering | Issue 49 | Shvat 5780 | February 2020



### What's in this issue?

An Elevator to Innovation	4-5
Together We Will Create the Change that We All Want to See	6
SCE Signed an Academic Collaboration Agreement with Universities in China	7
From Earthquakes to Tunnels and Structures	8
When we Get to the Bridge – We'll Cook it	14
Operation Grandparents	16
Renew Old Relationships and Engage in Activities	18
Do Students in Israel Depend on Their Parents?	19
Engineers on the Bar	23

**Publisher:** Public Relations Section

**Editor:** Talya Gersh

**Board members:** Shay Shabtay,  
Marina Grinshpon, Debora Korem,  
Hila Maharabani, Yafa Danieli, Liron  
Ohayon

**Copy editing:** Na'ama Dotan

**Graphic design:** Studio Rave-Peleg

**Photography:** Kanner Productions

**Address:** 56 Bialik St., Beer-Sheva

**amart@sce.ac.il | www.sce.ac.il**

## Engineering Professions Top

There is a shortage of 9,091 engineers according to data published by the Israel Central Bureau of Statistics

Council for Higher Education data published here in the past showed, for the first time, that engineering is the most sought after study track in Israel. New data offers another explanation for this phenomenon: the high demand for engineers in Israel.

According to data published toward the end of 2019 by the Israel Central Bureau of Statistics, there is a shortage of 9,091 engineers, comprising about 10% of all open positions in Israel (97,600). In fact, among all occupations engineering is the sector with the largest number of open positions. By comparison, even in occupations with a large turnover rate that do not require prolonged training, such as waitering or kitchen and cleaning work in institutions, there

is a smaller shortage of workers: about 6,000 and 5,000, respectively. Thus, the Israeli economy has an increasingly growing need for engineering graduates.

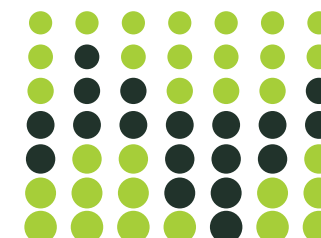
At the recent SCE graduation ceremonies, with BA and Ma degrees awarded to 881 engineers, SCE President, Prof. Jehuda Haddad, addressed the SCE's contribution to filling the open engineering positions in Israel: "We grew to become the largest engineering college in Israel, with about 5,500 students currently studying at the college. We already have 10,000 graduates, which make up 15% of all engineers in Israel".

Prof. Haddad noted that, "Academic

## List of Open Positions in Israel



a shortage of  
**9,100**  
engineers



**97,600**  
open positons  
in Israel

flexibility is needed in order to fill the shortage of engineers in recent years, so that learning is also adapted to industry. A focus on practical experience is needed, as well as efforts invested in connecting persons in industry to academia and integrating into the teaching faculty people in the field who are familiar with hi-tech requirements.

The data points to a huge potential to reduce the shortage of engineers in the hi-tech industry. However, achieving this calls for a change in thinking patterns and a more informed allocation of resources - to enable use of the human capital for the benefit of the economy and its needs".



### From the President's Desk



Semester A is behind us, and I wish success to all students in the midst of the exam period.

This year, for the first time, more young people chose to study engineering fields over other study tracks offered in academia. This news indicates a changing trend in academia in Israel. I believe that the demand stems mainly from an understanding of the employment market in Israel, with hi-tech and infrastructure development industries now playing a central role: numerous start-ups opened, technological incubators and industrial parks established, and a growing need for housing solutions and suitable infrastructures. Many young people choose to study engineering and hi-tech fields in order to find their place in these fields, and through them to build their professional future.

As an academic institution that qualifies the future generation in these fields we seek to fill the shortage of engineers that emerged in recent years in a variety of ways. In this issue we will present some of our activities in this area.

We continue to renew and develop in all the engineering departments and research centers, to place an emphasis on quality research and teaching and on the connection to advanced industries in Israel. Furthermore, we maintain research relationships and student exchange programs with leading institutions in Israel and the world, provide our students with quality learning environments and enrich their personal and professional world in varied ways.

I wish all of you continued learning, renewal and initiative. To the new students joining us in the spring semester I wish quick and successful integration into the fabric of life and studies at the SCE.

Yours,  
**Prof. Jehuda Haddad**  
President





## “An Elevator to Innovation”

The Innovation Authority R&D Preparatory Incentive Program was launched at a conference held at the SCE in December 2019, with the participation of more than 150 persons from about 85 companies and plants in southern Israel.

The R&D Preparatory Incentive Program is a complementary tool for the benefit of Israeli industry. The program is intended to help drive innovation processes in companies and plants without prior R&D experience and in companies whose R&D activity requires focus and guidance. The program was launched as a collaboration between the Israel Innovation Authority, the SCE, BDO Operational Excellence consulting, the South District of the Manufacturers Association of Israel and the Kibbutz Industries Association.

As part of the project about 30 senior researchers from SCE engineering departments will accompany companies

and plants in the southern area together with experts from BDO Operational Excellence. The preparatory program offers four support tracks, depending on the company's needs: Basic Support Track, Technological Feasibility Examination Track, the Track for Developing Solutions for Flaws in the Production Process and the Track for an Improved Production Process. Both the accompaniment and the process will be adapted to the needs of the company/plant and focus on finding solutions to essential technological processes, conducting technological feasibility studies and considering projects that will improve production processes.

### Innovation in Industry 4.0 Award

SCE President Prof. Jehuda Haddad opened the conference and announced the SCE's decision to grant an annual Innovation in Industry 4.0 Award to a

company or plant that will incorporate advanced production processes, integrate more robotics, automation and smart production and act to realize in practice the fourth industrial revolution for a better world. “The SCE educates for excellence and advances education in the engineering and technology fields in the aim of qualifying the next generation of industry and hi-tech professionals in Israel”, said Prof. Haddad. “We must recognize the revolution taking place in front of our eyes, the fourth industrial revolution: the digitization, artificial intelligence, robotics, energy and resource savings and environment protection revolution”.

Israel Innovation Authority CEO, Aharon Aharon: “The rate of change is increasing. In 2018 we had exits in the amount of USD 12.6 billion and 12 multi-national R&D centers were opened. It was an excellent year for Israeli hi-tech, and it looks like

The Innovation Authority R&D Preparatory Incentive Program, launched at the conference held at the SCE, will help drive innovation processes in companies and plants throughout the south ■ The program will operate as a collaboration between the SCE, the Israel Innovation Authority, BDO Operational Excellence consulting and additional entities

2019 will also be such a year. Nonetheless, there is a human resource shortage in the scope of 15 thousand positions in R&D, and stagnation in the transfer of knowledge from academia to industry. We must act to increase the supply of human capital in hi-tech and encourage the transfer of applied knowledge from academia to Israeli industry”.

### Innovation – The Key to Survival

Esti Goldhammer, Managing Partner at BDO Operational Excellence, lectured on: “Industry 4.0 – Evolution or Revolution?”, and indicated that quite a lot of money and creativity are needed to create a revolution. She said that: “The more we are in the worlds of robotics and automation, the more we will gain higher production quality and

product innovation, and will be able to respond quickly to customer desires and expectations”.

Dr. Malka Nir, Head of the Advanced Manufacturing Division in the Innovation Authority, noted that innovation in hi-tech does not trickle down to other economic sectors, and issued a call to plant and company managers to submit plans and proposals to the Innovation Authority, on the one hand to advance the plant or company, and on the other hand to receive encouragement grants from the State. Dr. Nir said that: “Our goal is that plants will get on the ‘elevator to innovation’; an elevator that only goes up. Innovation will enable the Israeli economy to contend with competition in Israel and the world and to be prosperous and profitable”.

Dr. Neta Kela, Head of the SCE Entrepreneurship and Innovation Center, spoke about “Academia as a catalyst for technological innovation in industry”, and said that “In an age in which competition in industry is increasing, innovation is key to the survival of companies. At the SCE Entrepreneurship and Innovation Center we implement a study method that aims to train the engineers of the future to lead innovation in industry – the industry project-oriented teaching approach. By setting challenges based on industry challenges, along with the accompaniment of faculty members and a unique methodology, the students acquire tools that give them practical experience”.



## "Together We Will Create the Change that We All Want to See"

The SCE signed a cooperation agreement with Incubit, Elbit Systems technological incubator

The SCE hosted the signing ceremony of a collaboration agreement between Elbit Systems technological incubator, Incubit Technology Ventures, that operates as part of the Innovation Authority's incubator center and the SCE's Entrepreneurship and Innovation Center (EIC). SCE President, Prof. Jehuda Haddad, as well as the incubator CEO Oren Gadot and additional senior individuals attended the ceremony.

Our goal is not only to support the hi-tech market in the south, but to ensure that the brains stay here. I am proud to say that 50 employees at the Gav-Yam Hi-Tech Park are people we brought

The aim of the collaboration is to strengthen the entrepreneurship, hi-tech, technology and engineering community in southern Israel, to heighten activity in these areas by conducting events, entrepreneurship programs, mentoring and other activities, and to provide access to laboratories and experts in academia.

Incubit focuses on deep tech (hi-tech companies that base their work on academic knowledge and research) and on projects in their initial stages. Most of its entrepreneurs are graduates of academic institutions in the south and have advanced degrees in engineering and technology fields. Similar to researchers at the SCE, the entrepreneurs are engaged in a wide range of technologies in fields such as nanomaterials, unique materials, advanced optics, cyber, artificial intelligence, quantum computing, sensation, robotics, advanced communication and augmented reality.

Prof. Jehuda Haddad, SCE President, welcomed the collaboration: "We are happy to sign a collaboration agreement with



Incubit. The College guides its students to initiate and generate new ideas that will offer solutions to problems we face every day, and to those we will face in the future. Our goal is to prepare quality students for the employment market with a desire to help the world. It is a great honor to work together with a company such as yours, and I am sure that the relationship between us will lead to a better world".

Oren Gadot, CEO of the Incubit incubator:

"The SCE and its students are fertile ground for ideas and initiatives. We have the tools to turn these ideas into operational and economic projects. Our goal is not only to support the hi-tech market in the south, but to ensure that the brains stay here. I am proud to say that 50 employees at the Gav-Yam Hi-Tech Park are people we brought. We are happy about the collaboration with the SCE and confident that together, with teamwork, we will create the change that we all want to see".



## SCE Signed an Academic Collaboration Agreement with Universities in China

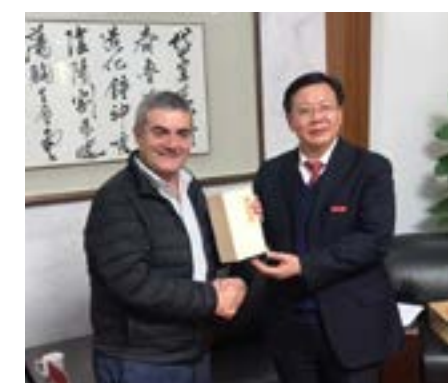
Collaboration was discussed and an agreement for student and faculty exchange and future research and entrepreneurship collaborations was signed during a visit of SCE management to Jiangsu province in China

After representatives of Chinese universities visited the SCE, College management conducted a reciprocal visit to Jiangsu province in China. The delegation, that included SCE President Prof. Jehuda Haddad, CEO Ms. Zohar Wohlfarth Cohen and Dr. Avshalom Danoch, Assistant to the President and Head of the Academic Administration, met with heads of universities in the province and with the management of the Israel-China

"We at the SCE will examine ways to establish the academic collaboration that will benefit both parties and contribute to joint future projects of China and Israel."

Entrepreneurship and Innovation Park in Changzhou (CIP).

The hosts and the guests presented their



study tracks as well as student and academic faculty projects and research. Student and faculty exchange programs and options for academic collaboration, including applied research, were discussed. An academic collaboration agreement between the institutions was signed at the end of the visit.

Prof. Haddad thanked the hosts "for their wonderful hospitality and for presenting the innovation park's academic-industrial infrastructure". He added that "We at the SCE will examine ways to establish the academic collaboration that will benefit both parties and contribute to joint future projects of China and Israel. In the first stage we will examine a student and faculty exchange program, and I am sure that when the academic collaboration is set in motion – we will advance to joint projects between industry in Israel and China."



## From Earthquakes to Tunnels and Structures: New Studies Presented at the Civil Engineering Conference

The “Dynamic Rock Failure Monitoring” conference, held at the Ashdod campus with the participation of dozens of visitors from universities throughout the world, discussed new studies about earthquakes, rock mechanics and tunnel stability

Dozens of researchers from different universities in Italy, UK, Greece, India and China, along with advanced degree students from academic institutions throughout Israel, participated in the Civil Engineering department conference held at the Ashdod campus. The conference, that focused on rocks and the monitoring of failures, presented new studies conducted in labs, tunnels and even during earthquakes.

The conference dealt in research aspects of a variety of problems challenging civil engineers in their work. Topics included rock mechanics and physics, stability of tunnels dug in rock, earthquakes and their effect on man-made rock structures, and more.

“We are glad to host world renowned experts here at the Ashdod campus,” said Prof. Wafa Elias, Head of the Civil

Engineering department. “The SCE strives to serve as a bridge between the academic world and those working in the field. The research experience we have gained, and the importance of our relationship with the field, are already recognized in the world. We hope that the studies presented at the conference will serve civil engineers working in the rock field, and look forward to continuing our leadership in this field”.



## Ethical Engineering – There is Such a Thing

In the new workshop added to the curriculum in various departments at the Ashdod campus, students study ethical issues relating to their chosen field of study

As part of the SCE vision – “Engineering a Better World”, the Ashdod campus is aware of the need for an important, and perhaps less obvious, tool in the engineer’s toolkit: a critical approach to technology. This approach places human beings, society, nature and the environment at the center and is aware

important, and perhaps less obvious, tool in the engineer’s toolkit: a critical approach to technology. This approach places human beings, society, nature and the environment at the center and is aware of the strengths and dangers of technology.

capabilities, advantages and deficiencies – they are responsible not only for the prosperity and flourishing of humanity, but also for the suffering and harm. Every engineering field has ethical dilemmas with which those working in the field must contend.



of the strengths and dangers of technology.

Engineers focus mainly on technical and management aspects of technology, and usually ask “How?” (How to design algorithms? How to build machines? How to design and develop computerized systems?, etc.). Engineers do not usually deal with the effects of technology on the individual, society, the environment and humanity in general. In other words, too often they do not question whether a certain technology should be developed. Since engineers are an integral part of technological progress – its

The workshop “Engineering Ethics” was added to the curriculum of the different departments at the Ashdod campus in November 2019. The lecturer, Dr. Tal Caspi from Ben-Gurion University of the Negev, conducts separate experiential workshops for the students in each department. He discusses the definition of ethics, raises awareness about ethical issues, develops critical thinking and presents case studies unique to the specific fields of each engineering department. Working in teams the students actively contend with various ethical dilemmas.

## ONE SUMMER IN PADOVA

Ofri Rashti and his friends, students in the civil engineering department, recount the summer semester they spent in Padova Italy through the Erasmus+ program

The SCE began its international activity in the EU Erasmus+ program several years ago, and participates in both tracks.

I received an email with a Call for Proposals for civil engineering students, and I was quite surprised, because student exchange is not common in our department. Civil engineering studies are usually adapted to the building methods in the particular country in which the studies take place. This is even more problematic when you are in advanced years of study and are supposed to start working on the final project and take courses that are based on Israeli standards.

To enable civil engineering students to also participate in the Erasmus+ program, the SCE was able to organize student exchange during the summer, without impairing studies in Israel. I felt that this was an amazing opportunity and decided to register and try to get accepted.

After several interviews and many forms, I was accepted. The anticipated date arrived and we – four students from the SCE civil engineering department - landed in Venice. From there we took a bus to Padova. The area is full of water and the humidity is hysterical. It was a bit difficult in the beginning, but it didn't take a long time to find the place where we would live and to fill some more forms – and then the fun began.

We each received housing that was very close to each other and also to the university and to the city center, which enabled us to get around very conveniently.

On the first day we already met many people from around the world, most of them students registered in the Erasmus+ program.

Padova, a student city with a young atmosphere, is a fun place. We received recommendations about interesting places from our lecturer at the SCE who had visited Padova before us, and of course we checked them out at the first opportunity.



At the university we were received by the head of the civil engineering department, Prof. Francesca, who introduced us to the faculty. We began to work on an interesting study under the guidance of Dr. Elvis Kasketi. In our weekly meetings with him we presented our progress that was based on his supervision and discussed various topics.

Since we were there in the summer, in the month of August when all Italians take a long vacation, we decided that we would also take a vacation of our own to see and get to know Italy.

We accumulated many experiences, but the main experience was participating in research, something that undergraduate students are usually not exposed to. We really enjoyed this. We also had the opportunity to get to know students from different places in the world, who became good friends and were partners to many experiences that we will cherish forever.

In summary, I warmly recommend the Erasmus+ program, that provides both financial and personal assistance: airline tickets, accommodations and tours in the area. I had the opportunity to develop personally, to get to know new friends and

different cultures, learn a new language and acquire additional and fascinating knowledge in the civil engineering field.

**Erasmus+ is an EU program that supports education, training, youth and sport in the European community. The program has several tracks, among them two major tracks that are relevant for academic institutions:**

**Mobility (Key Action 1 - KA1)** - student and faculty exchange program. The program offers an opportunity to study and teach at an institution of higher learning in a foreign country (with a budget for flights and accommodations).

**Capacity Cooperation** in the KA2 track (Key Action 2) - developing the higher education system by promoting modernization and internationalization and increasing teaching quality in higher education institutions in the partner countries. This track deals mainly in projects on topics relating to innovation, knowledge sharing and integrating advanced technologies in teaching.

## "Thank You for the Opportunity to Do Good": Students Describe their Social Involvement Experience

The Dean of Students operates many and varied social involvement programs, and calls on all students to take part in these activities

The Dean of Students strives to realize the SCE's vision regarding its commitment to Israeli society and the southern Israel – the area in which the SCE lives and breathes. The goal is to involve students in social, value and educational activity in order to cultivate and further the society in which we live. Thus, more than 1,500 students are involved in diverse social activity each year. Their important activity is filled with experiences and giving, with exposure to and learning about the Other - and something about themselves. Here are the testimonials of two students.

Itay Abramovich, a 4th year student in the civil engineering department on the Ashdod campus: "The college encourages students to develop relationships with other organizations, so that in the future, as engineers, we will be change leaders. In my activity at Alut, the Israeli Society for Children and Adults with Autism, I had the opportunity to meet wonderful children with special needs and to learn how to connect with each of them, in the way most suited for them. I was exposed to the difficulties the parents experience and to the wonderful relationships between the children and their parents. I discovered the parents' resilience, each in his or her own way, in dealing with the difficulty of caring for a special needs child. In my 4th year of studies, such acquaintance with different people, who I would otherwise not meet in my everyday life, enabled me



to understand that any obstacle can be overcome".

The contribution, which is evident from the students, is mutual. Their activity in the community is powerful and special thanks to each and every one of the them – who choose each and every day to act, make an impact and create change.

Meshi Avni, a 4th year student in the chemical engineering department on the Be'er Sheva campus, recounts: "This is my third year of volunteering in the Yedidut Foundation (International Fellowship of Christians and Jews IFCJ) 'With Respect and Friendship' program. The program helps elderly persons and Holocaust survivors, providing for their basic needs and alleviating their loneliness. During this period I accompanied elderly people, and engaging with them I heard their stories of survival and desire to continue to live, even after everything they endured. Small gestures, that seem to us marginal and obvious in daily life, such as conversation, sharing feelings, caring, concern and attention to someone else, mean the world for this group.

"In the past two years people very dear to my heart passed away – the elderly

woman who I accompanied, as well as my grandfather and grandmother who were Holocaust survivors. I felt the importance of volunteering in the foundation, of the effort to enable the elderly and the survivors to live the short time they have left with the dignity and respect they deserve. Volunteering gave me strength, resilience and motivation to forge ahead and to do my best in every area of life.

"Volunteering and contributing to society have had a significant impact on my life, and without them I would not be the person I am. In my name and on behalf of my fellow students, whose social activity has touched so many hearts, I would like to say thank you. Thank you for giving us the rare opportunity to do good for another, to be part of important social activity that has no substitute, to step out of our routine and to do wonderful things that do good for the soul".

The Dean of Students, it should be noted, operates numerous and varied social involvement programs based on partnerships, among them: student leadership programs; projects with different population groups such as the elderly, Holocaust survivors, at-risk youth, weakened families and new immigrants; and social-technological entrepreneurship programs in which students impact society using engineering and technological tools they acquired in the course of their studies at the SCE.

We call on all interested students to volunteer – please join us and participate in the various programs!





## What Do We Know about the Mediterranean Sea?

Students in the “All This Green” course toured the Dolphin and Sea Center in Ashdod and concluded the visit with a clean-up campaign at Zikim beach

The SCE “All This Green” course, taught by Dr. Hofit Itzhak Ben Shalom, deals in the climate crisis with a focus on the water problem in Israel and the world. Students in this course conducted an interesting visit to learn about the vital importance of the Mediterranean Sea – and particularly its significant value for us, as a greater source of drinking water than the Sea of Galilee. In fact, 70%-100% of the water we drink today comes from the Mediterranean Sea.

The visit began at the Dolphin and Sea center in Ashdod that was established and is operated by the Israel Marine Mammal Research & Assistance Center. The students heard about problems and dangers the Center encounters, for example a whale whose tail was injured by a jet boat engine, and received an overview on topics such as: marine mammals, their habitat and food sources; global warming and its impact on marine animals along Israel’s shores; and the invasion of various species along our coast and ways to address this problem. The problem of the dwindling marine population and the decreasing number of species due to massive fishing along our coastline were also presented.

The tour ended at the Holot Zikim Nature Reserve where the future engineers collected the garbage left by visitors to the beach. The garbage was varied and contained, among other things, beach sandals, food leftovers and bags.

Dr. Itzhak Ben Shalom summarized: “The clean-up contributed, if only a little, to a

clean beach and to maintaining the marine population. As I see it this is a welcome activity that should be included in every tour that includes a visit to the beach. A clean-up of less than an hour by a group of about 15 students resulted in a nice pile of garbage, all left behind by those who came to the beach and which could cause potential harm to so many elements”.



## “Trailblazing Women Engineers” Pass it On

A unique project that empowers women engineering students and enables them to meet women trailblazers in science and hi-tech ■ In turn, the women students expose female high school students to opportunities in engineering studies



The “Trailblazing Women Engineers” project provides women students in the Civil Engineering, Mechanical Engineering and Electrical and Electronics Engineering departments with a unique opportunity to find their voice in study fields characterized by the underrepresentation of women, while minimizing cultural constructions.

In the first two years of their studies the women students participate in workshops and hear the stories of women trailblazers in Israel and the world. Over the years project participants met with key figures such as Prof. Ada Yonath, Nobel Prize Laureate in Chemistry, and Ms. Maxine Fassberg, former CEO of Intel Israel. The get-togethers contribute to the process they undergo and to its internalization. They hear the personal stories of these women, learn about their



strong points and ask questions about career and family, social life and professional development.

The women students also participate in training in presenting themselves, making presentations and writing a CV, as well as in workshops about today’s employment market.

The women students pass on the knowledge they gain and tools they acquire: they meet with female high school students in the aim of exposing them to engineering study fields and mitigating concerns about engineering studies. Thus, the women students themselves become role models. The female high school students learn about the different engineering departments, the process each female student went through in choosing engineering and the importance of engineering studies and the experiences gained through them. The female high school students tour the labs and participate in activity that combines engineering thinking, teamwork and thinking outside the box.

We are confident that the women students who take part in the project will be trailblazers and achieve whatever they aspire to.



The first place in the annual pasta bridge building competition (500 grams!) was awarded to the group whose bridge withstood a weight of 15 kg!

At the traditional annual competition held this week in the Structural Analysis 2 course, taught by Dr. Marina Firer, third-year students were challenged with designing and building a bridge that can sustain heavy loads - using only a 500 gram package of pasta and glue.

The structure had to bridge two surfaces at a distance of one meter from each other, with a minimum width of 5 cm and up to 50 cm high. Weights were loaded on the bridges to test how much weight they could withstand.

## When we Get to the Bridge – We'll Cook it

Despite the extreme conditions, many teams succeeded in reaching impressive weights. The winning team - comprised of the students Shmuel Haddad, Yagel Huri, Aviel Halili, Oren Levi, Ariel Lechtman and Shlomi Kuberman - built a bridge that was able to sustain the unbelievable weight of 15 kg.

According to the Head of the Civil Engineering department, Dr. Dagan Bakun-Mazur, the competition is part of the Project Oriented approach that is employed at the SCE and is based on learning by doing. The students experience teamwork in solving engineering problems, accompanied by close academic and practical guidance adapted to a changing reality.

Dr. Dagan Bakun-Mazur: "We conduct these competitions to enable our students to gain experience in designing and building tangible products; to leave the routine of studying



in class and to experience engineering challenges. From conversations with students we learned that the experience of creating, alongside the required engineering calculations, enables them to better

understand how things work. They also develop the important skills of teamwork and advancing projects, which every civil engineer needs".

## SCE Students will Help Save Water in Developing Countries

The Swedish company Separett AB, which is developing the next generation of waterless toilets, shows interest in solutions proposed by SCE students who participated in the TED MINT 2019 Conference

A delegation from the Mechanical Engineering department participated in the TED MINT 2019 Innovation Week at the Värnamo campus of the Swedish Royal Institute of Technology (KTH). The aim of the conference was to advance the Swedish industry based on an approach that supports collaboration between local companies and academic institutions throughout the world in solving R&D, planning and design problems.

The SCE delegation included Dr. Alon Weiss and four selected 4th year students in the Mechanical Engineering department: Moran Dahan, Tal Tzur, Shai Shnirmacher and Netanel Zeitzer.

The conference participants, local students and students from India, France, Spain and Germany, were asked to propose solutions to a challenge presented this year by Separett AB: to develop the next generation of waterless toilets intended for complex areas in the world with poor resources.



Some of the innovative concepts developed during the conference which met the need and the challenge were presented at the end of the conference. The hosting company also announced that it intends to develop one of the concepts into a future product, and to include in its development some of the ideas and proposals offered by the SCE students.

Dr. Weiss, who accompanied and led the

SCE students at the conference, proudly summarized: "The solution we proposed leads to significant water savings and can be used in third world countries with a shortage of water or difficulty transporting water because of the topography. I was happy to see the creativity of our students, all of them BA students who competed successfully with MA and PhD students".

## From the Mechanical Engineering Department to an Origami Exhibition in Spain

Dr. Saadya Sternberg from the Mechanical Engineering department exhibits origami works at the EMOZ Museum in Zaragoza, including developments from students' final projects!

At the SCE we are used to academic faculty members participating in academic conferences around the world, but representing the College in the art world is a first.

Well, this first time is happening: Dr. Saadya Sternberg from the Be'er Sheva campus Mechanical Engineering department is exhibiting his origami works at the EMOZ Museum in Zaragoza Spain (Educational

Museum Origami Zaragoza), alongside two other Israeli artists: Ilan Garibi and Ynon Toledano.

The subject of the exhibition is the development of contemporary origami in the fields of design, sculptural art and engineering, while maintaining the basic principles of this art form: beginning with one surface and folding without cutting. More than 200 artworks are exhibited from



materials such as wood, brass, metal, gold, silver, glass, leather, and of course – paper.

The exhibition includes a wall dedicated to Dr. Sternberg's geometric-mechanical inventions, including those developed under his supervision at the SCE as part of the final projects of fourth year Mechanical Engineering students.





## Operation Grandparents

Students at the Tech-Med hackathon final event proposed varied technological solutions for third age challenges \* The hackathon was part of the launch of the Entrepreneurship and Innovation Center on the Ashdod campus

The new Entrepreneurship and Innovation Center complex was launched on November 19, 2019 on the Ashdod Campus.

The complex will serve students in the EIC's entrepreneurship courses and dedicated programs, among them the "Accelerator" and "Innovation Engineers" programs. The complex is aligned with the SCE's vision to cultivate excellence and bring about prosperity through multi-disciplinary education, entrepreneurship and leading applied research.

The Tech-Med hackathon final event began after the EIC launch ceremony, and was held in cooperation with the SCE Dean of Students, Assuta Ashdod Medical Center, the Amal and Beyond Group network of elder-care facilities and BDO.

The hackathon, that focused on challenges

in the third age of life, was part of the entrepreneurship course that is taught based on the project oriented approach. According to this approach students contend with challenges and tasks in the "real" engineering world, in cooperation with industrial companies, medical and defense entities and others.

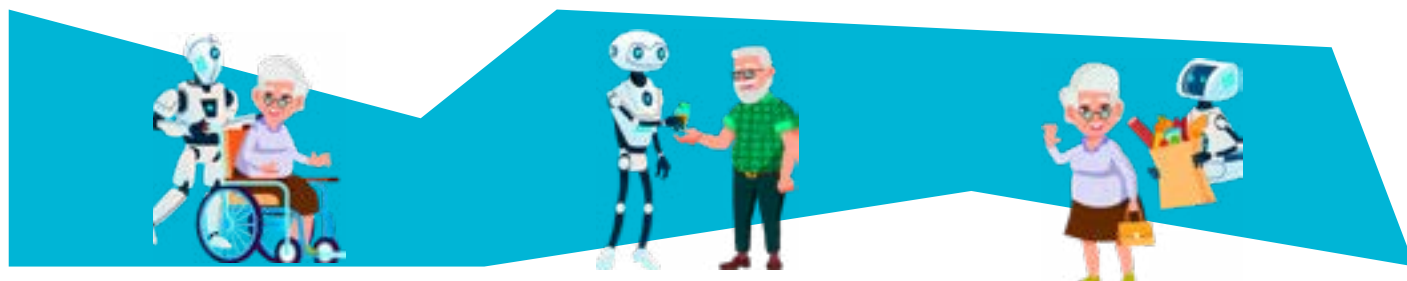
In the pre-hackathon stage, and as part of their entrepreneurship training process, the students were asked to join Operation Grandparents: they interviewed family members in the third age and inquired about their challenges relating to healthy aging in the home setting.

In the aim of training students to identify and characterize user challenges, they were asked to "distill" the needs and challenges, to select one of them and to propose a technological

solution. The students presented varied projects, among them bracelets for elderly people who are hard of hearing, social networks, form filling applications and a home physiotherapy device.

The gerontechnologist Ms. Keren Etkin - an age-tech expert, lectured on "Robotics in the Service of Old Age".

The panel of judges included Dr. Asaf Peretz - Head of the Internal Medicine department at the Assuta Ashdod Medical Center; Tovi Carmon, Head of the Innovation Center at the Amal and Beyond Group network of elder-care facilities; Mr. Gideon Cohen - Business Development Manager at BDO, and experts from the EIC. After the students presented their outputs, the judges selected the winners in the first three places.



## The Entrepreneurship and Innovation Center Sums Up a Semester of Activity

The EIC's programs aim to give students the tools and experience needed to develop their entrepreneurship and initiative and to connect to industry \*You are invited to listen and join!

The Entrepreneurship and Innovation Center (EIC) was established to foster student entrepreneurship and innovation education, impart tools and provide experience required to develop intra-organizational entrepreneurship and innovation in the student's future workplace, as well as to connect to industry and its current needs.

Accelerator Program - the EIC accompanies students from the various SCE departments during their final project. The aim is to impart knowledge and in-depth understanding of marketing and business management in order to improve student competencies as engineers able to identify problems, offer solutions and implement them - not only from the engineering perspective, but also from an overall and wide-reaching business perspective.

Several dedicated workshops for program students were conducted during the semester. Merav Babai, founder and CEO of Pro-Man, led a workshop about business branding; Dr. Oren Dayan - one of the owners of DIFF agency and a world-renowned expert in digital marketing, led a workshop on the topic; Shabi Dagan - CEO of CYOU Retail, led a workshop about building a business plan. In Semester B the students will participate in additional enrichment workshops and visit innovation centers, accelerators and industries.

Engineer+ Seminar - is part of the "Basic Concepts in Entrepreneurship" course, which imparts basic entrepreneurship knowledge and tools. The seminar hosts guest lectures from diverse fields and industries, and in semester A included: Ayelet Ben-Arav, VP Business Development in Elbit Systems technological incubator who lectured on the transition from academia to the



The aim is to impart knowledge and in-depth understanding of marketing and business management in order to improve student competencies as engineers able to identify problems, offer solutions and implement them

technological entrepreneurship in the region of Israel surrounding the Gaza Strip area, who shared his personal experience - about the challenges facing beginning entrepreneurs.

The Entrepreneurship and Innovation Center invites students and faculty members to participate in the Engineer+ seminar in Semester B. For additional information about the EIC's programs please send an email to: [eic@sce.ac.il](mailto:eic@sce.ac.il).

entrepreneurship world; and Shahr Belkin, entrepreneur and Chairperson of SouthUp Association that fosters and develops





## Renew Old Relationships and Engage in Activities

The SCE Alumni Association was launched in high-quality alumni get-togethers on both campuses

The SCE Alumni Association has been growing in recent months, encouraging SCE graduates to take part in social initiatives, projects, conferences, fundraising and additional activities.

Our graduates' personal and professional relationships can contribute significantly to the integration of new graduates into industry while reinforcing the SCE's standing as an impactful leader in its field in Israel's economy and society.

The first alumni evening took place on the Be'er Sheva campus during the Hanukkah holiday. About 200 alumni enjoyed a standup performance of the comedian Omer Borstein and a festive lighting of Hanukkah candles with SCE President,



Prof. Jehuda Haddad, along with food and deserts, alcohol and beverages. The participants summed up the event, noting that it was successful and that they were very happy to have had the opportunity see their college friends and renew old relationships.

In February we held another evening, this time for Ashdod campus alumni. The evening included an unusual performance by the sensory artist Nir Haimovich, and a rich selection of refreshments and drinks.

Such get-togethers strengthen our relationship with SCE graduates, represent a significant milestone in the SCE's growth and are very important for the development of the College.

It is important to note that since its founding more than 20 years ago the SCE has trained more than 10,000 BA and MA graduates, comprising about 15% of all engineers integrated into hi-tech fields in Israel.



## Fuel for Success

From the Industrial Engineering Management department to CEO of Ten: SCE graduate Moshe Sarussi recounts his career path and shares his insights



Moshe Sarussi, a graduate of the Industrial Engineering and Management department, currently serves as CEO of Ten Petroleum Company – the fifth largest chain of combined gasoline and retail stations spread throughout Israel.

Moshe began his path at Ten as Information Systems Manager, advanced to the position of VP Operations and Technology, and after

five and a half years was appointed CEO by the owners, Apax Partners Israel, headed by Zehavit Cohen.

Moshe notes that his studies at the SCE were a very significant springboard, not only in his development as a professional that tries to improve and learn as a way of life, but also in providing the foundation for shaping his values and professional outlooks. "The

studies were of great help in my integration into industry, and moreover – in my ability to remain relevant over time".

In his professional life as CEO Moshe continues to learn new things, tries to enjoy the journey and to lead the company to achieving its business goals in a complex and competitive market. As he sees it, every victory – small and large alike – is a dream realized.

Finally, Moshe shares a useful insight from his own experience with our future graduates: "If you made the decision to study –invest, take your studies seriously, enjoy them, and take advantage of every minute. Your studies are an excellent foundation for the future. Going forward you will not always be able to stop and take time to study and invest at the same level".

## Do Students in Israel Depend on Their Parents?



A survey initiated by the SCE found that most of the Israeli public thinks that parents influence their children's field of study to a large extent – and also help them financially during their studies

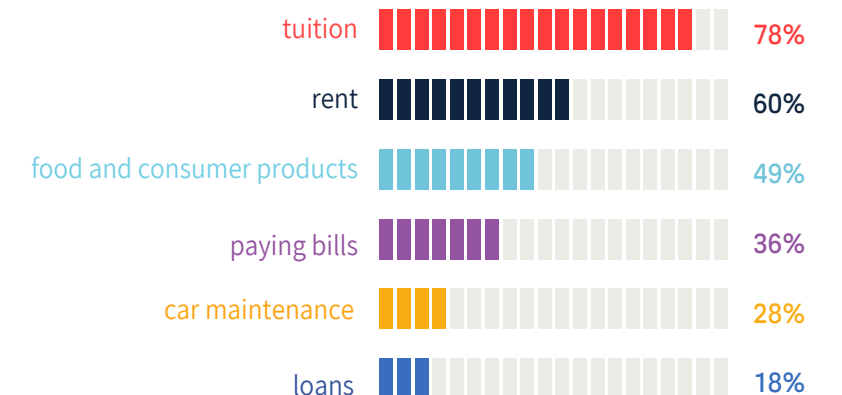
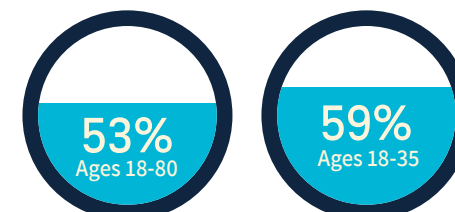
Toward the beginning of the 2019/2020 academic year the SCE initiated a survey to examine public attitudes about the extent to which parents in Israel influence their student children: to what extent they influence their children's field of study and to what extent they help their children financially during their studies.

The survey was conducted by Ifat Media Research among 507 individuals ages 18-80, a representative sample of the population in Israel. The survey findings indicate that a majority of the public, as well as a majority of young people, think that parents have a vital influence in these areas.

Regarding the choice of study field, the survey shows that 53% of the general population, ages 18-80, and 59% of young adults, ages 18-35, think that parents significantly influence their children's field of study.

Regarding financial assistance, a large majority of the population thinks that parents help their student children in some way. 87% of the respondents think that parents provide

assistance, in one way or another, in all matters relating to their student children's financial expenses. According to the respondents, most of the financial assistance is for tuition, however, surprisingly – most think or know that assistance is provided for a host of material needs: tuition (78%), rent (60%), food and consumer products (49%), paying bills (36%), car maintenance (28%) and loans (18%).







## From Manual to Electric – Easily and Inexpensively

**In honor of International Day of Persons with Disabilities SCE students presented a simple system that turns a manual wheelchair into an electric one**

International Day of Persons with Disabilities was observed throughout the world in December 2019. In honor of this event two SCE students in the Mechanical Engineering department presented an electric conversion system for wheelchairs for the disabled.

As part of their studies, the students Alexei Moisyenko and Barak Nissan planned a system that can easily turn a manual wheelchair into an electric one. The project, that was conducted under the supervision of engineer Emanuel Yair, was also displayed at the “Engineering Society” conference.

The system is comprised of three parts:

batteries, an electric engine and operating and travel buttons. It operates on batteries that are installed under the seat and attached to the motor which is located at the front of the seat. A handlebar connected to the motor enables the user to control direction and speed. The system is easy to attach and is suitable for any standard wheelchair. Users able to use their hands can easily and simply install the system, operate it and also disconnect it if needed - by removing the motor brackets from the chair.

"We developed the system after in-depth

research of the topic and a survey of products on the market", recounted the students. "We found that existing systems offer cumbersome attachments at high costs, and many users are unable to use them or cannot afford them. Our system costs about a quarter of existing systems and installation is simple, using quick attachments. Furthermore, we planned the system so that by pulling a handle it returns to the regular state, for those who want to use the system on the Sabbath, without electricity. We hope our solution will help many disabled persons, ease their life and everyday activities".

## The Engineers of the Future are Already Here

**Today's youth are tomorrow's leaders • The SCE operates various enrichment programs based on this approach, aimed at opening a window for pupils into the world of engineering and academia**

Academia-community relations are an important component of the SCE's ongoing activity. Social involvement in the community in which it is rooted helps the College realize its vision to lead social change among diverse populations and cultivate the future generation – the generation that will develop, blaze a trail and lead.

Engineering is the main link in a technology-rich world and the basis for the development and growth of the advanced industries in the world. To make engineering accessible to tomorrow's generation the SCE developed exposure programs and a program for integrating pupils into academia. Youth enrichment programs have been successfully implemented at the Ashdod campus for several years.

Enrichment programs aim to expose as many pupils as possible, from different population groups, to engineering and technology fields. These programs take place both as part of school activities (for example seminars for pupils conducted at the SCE) and in the framework of independent programs developed by the SCE.

One such program is “Window to Engineering”, which exposes youth to the worlds of engineering and the sciences. The goal is to generate curiosity and motivation for academic studies in the science fields. Junior high school pupils (8th grade) come to the SCE to attend a series of fascinating encounters with the engineering world,

including hands-on and experiential learning in the SCE's advanced technological environment. The pupils are exposed to a new, wide-ranging and diverse world, and experience in a nutshell the academic, engineering and technological world - opening a window into the future for the program participants.





## Facilitating Immigrant Integration: The SCE Opened a Unique MA Software Engineering Program

A new program opened at the beginning of the year on the Be'er Sheva campus offers new immigrants from the post Soviet states a support framework for MA Software Engineering studies



Thirteen young men and women from the post Soviet states began their studies in a new Software Engineering Master's program that opened in October 2019 on the Be'er Sheva campus.

The unique program, in cooperation with the Jewish Agency and the Immigrating Student Authority, and funded by the Ministry of Immigration and Integration, is intended for individuals ages 20-30 who earned a BA degree in engineering and technological fields and recently immigrated to Israel or come directly from the countries of origin.

In the first year the students will study basic supplementary courses in software engineering, in Russian, as well as intensive Hebrew studies at an ulpan. From the second year the program students will join students in the regular MA program. Program participants will also tour Israel, become acquainted with the country and its culture, celebrate Jewish holidays and take part in various College activities.

The immigrants' high motivation, combined with the support provided by the College, the Student Authority, the Jewish Agency, the Ministry of Education and Kivunim company in Be'er Sheva, will help students succeed in their studies and integrate into Israeli society.

Dr. Avshalom Danoch, SCE's Assistant to the President and Head of the Academic Administration: "We are proud to be partners

to this social-Zionist project and to help train outstanding technology personnel who will advance Israel's hi-tech industry. I believe that the students will be exposed to academic content that will cultivate their abilities and facilitate their successful and rapid integration into the employment market in Israel. Together with our partners we are currently beginning to recruit students for the second class in this program".



## Come for the Experience, Stay for the Engineering

Dozens of 12th grade pupils from France visited the SCE as part of the "High School Seniors in Blue and White" project and expressed interest in continuing their studies at the SCE

Dozens of 12th grade pupils from France visited the SCE as part of the "High School Seniors in Blue and White" project. The youngsters met with researchers and students, heard about the study programs and the pre-academic engineering preparatory program and toured labs and classrooms.

"High School Seniors in Blue and White" is the largest Jewish Agency project, in cooperation with "The Israel Experience", that brings Jewish youth from France for educational tours in Israel. The pupils come for a one-week visit during which they are exposed to study options available in Israel after they graduate from high school. The



number of pupils from France who want to study in Israel, and particularly at the SCE, has increased in recent years.

Pupils who choose to study at the SCE in the future will live in an apartment in the old city of Be'er Sheva together with other

students from France. They will study in a pre-academic engineering preparatory program at the College, complete necessary studies, improve their matriculation grades and study Hebrew – and then will be able to begin their undergraduate studies in the study program they choose.

Dr. Avshalom Danoch, SCE's Assistant to the President and Head of the Academic Administration: "We are proud to host such a large group of youth from France who chose to visit us as part of their interest in engineering studies in Israel. Groups from schools in France come to visit us in recent years, a vote of confidence in the SCE as a leader in the engineering fields".

## Engineers on the Bar

The 2019/2020 academic year opened with the first two get-togethers in the "Engineers on the Bar" series that were held at Roaster's Café and Bialik 26 Pub in Be'er Sheva

Many students and visitors came to Roaster's Café in Be'er Sheva's neighborhood B for the first get-together in the "Engineers on the Bar" series – a joint project of the SCE Student Association and Israel Chemicals Limited (ICL).

At this get-together Prof. Leonid Oster, Head of the Physics Unit at the Be'er Sheva campus, lectured on: "Radioactivity – From Dangerous Relations to Peace Talks". Prof. Oster discussed the natural radioactive environment, radioactivity originating from human activity and the effects of radioactivity on biological tissue and the human body, and also addressed

radioactivity accidents such as the Chernobyl disaster.

Dr. Eitan Fisher, from the Mechanical Engineering department at the Be'er Sheva campus, and Dr. Elad Shufan, head of the Physics Unit at the Ashdod campus, were guests at the former home of the project – Bialik 26 pub, where they combined a performance with a lecture on the topic: "Can Robots Express Emotion?". The question was discussed through the world of music, which is a human and particularly emotional field. The get-together included a glimpse into the world of robotic music, a discussion and segments of musical works.



The Engineers on the Bar project is part of collaboration between SCE academic faculty, students and Israel Chemicals Limited, in the aim of forging a multi-disciplinary connection and reinforcing the relationship between academia, industry and the general public.





**SCE**  
SHAMOON COLLEGE OF ENGINEERING

