NEWS FOR A BETTER WORLD

SCE | Shamoon College of Engineering | Edition 54 | February 2023

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Nir Messika, a student at the SCE Visual Communications Department, won first prize in the poster competition held by the Israel Knesset | pg. 2-4

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The SCE Shamoon College of Engineering Newsletter

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What is new?

Publishers: The PR and Marketing Communications Department

Editor: Talia Gersh

Editorial staff: Shay Shabtai, Liron Ohayon, Marina Grinshpon, Debora Korem, Yasmin /samuel

Language editor: Naama Dotan

Graphic design: Raveh-Peleg Studio

Photographs: PR, Kener Productions

Address: 56 Bialik Street, Beer Sheba

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

MESSAGE FROM THE PRESIDENT

The spring semester is at our doorstep and we are pleased to see the college campuses vibrant and filled with new and veteran students. The College is fully active, with academic conventions, exhibitions, shows and happenings by the Students Union.

We have grown and developed over the past years: we have opened new study courses, college researchers are winning lucrative grants and prizes, new research centers are opening and academic conventions held by the college attract renowned researchers from Israel and around the world.

Collaborations with the industry and high-tech companies and research connections with leading academic institutions in Israel and worldwide have become commonplace, enabling the professional and research development of staff members, and providing you, our students, with an advantage when your turn comes to integrate into the industry and academia.

I wish all of you every success in your studies and research.

Sincerely,

Prof. Semyon Levitsky

SCE President

Variety of Opinions, One Knesset

Two students from the SCE Visual Communications Department won first and third place in the poster competition held by Israel's Knesset

The myriad of opinions concerning society and culture in Israel is greater today than ever before, and the strength of Israel's democracy lies in the proper representation of all its sectors. In September 2022 the Knesset issued "A Calling" for students in the fields of art and design. The students were asked to submit proposals for a poster competition, that would express the extensive arc of significances that is characteristic of Israel's democracy. The winning poster will be distributed on the Knesset birthday, which falls on Tu Bishvat, to schools, government organizations and of course the Knesset itself.

In the height of the summer vacation, student graduates of first year studies in Visual Communication, overran the department's studio (which was empty due to the holidays) and dived into work, reviewing imagery, planning compositions and creating sketch upon sketch, adding color and typography.

The poster by Shahar Ogalbo, which won third prize, shows the idea of

Shahar Ogalbo

Nir Messika

"Variety of Opinions, One Knesset" using the Seven Species (fruit and grains typical to Israel according to the Bible), which Shahar chose to grow from a single central stem to emphasize their strong connection. Nir Messika's poster, which won first price, was inspired by the stone frieze "Carry Peace Jerusalem" designed by

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The winners with the former Knesset Chairman, MK Micky Levy (second from left). A lucrative win.

MESSAGE FROM THE RECTOR

As a college with a vision focused on leading social change through education in the fields of engineering, architecture and design professions, SCE trains professional human resources to a high level of initiative, creativity and an ambitious academic-scientific level with a desire for innovation and change.

I am proud to mention our two students from the Visual Communications Department, who won first and third prizes in a competition initiated by the Israel Knesset on the subject of "Variety of Opinions – One Knesset", which you can read about in the adjacent article.

The growth and development of the college, both in number of students and in the new study course, have led to the establishment of an additional building on the Be'er Sheva campus. At the same time we are in the midst of planning and raising funds to establish a new campus in Ashdod, near the Assuta hospital and the Ad Halom train station in the city's south.

To the thousands of veteran students, and of course to the new ones joining us for the spring semester, I wish you speedy integration here at SCE.

With warm regards,

Prof. Jehuda Haddad

Rector

>> **"Variety of Opinions, One Knesset"**

artist Danny Caravan in 1964. The frieze is installed on the south wall of the Knesset plenum and is an important and well-known work. Nir compares the parts of the frieze to the cultural variety characteristic of Israeli society and to the myriad of opinions in the country, as represented in the Knesset.

Shahar and Nir, currently second-year students, are members of the first course in Visual Communications opened at SCE in scholastic year 2021-2022. The posters submitted for the competition were designed following a year of intensive studies in typography, form development, design thinking and message conveyance, alongside theoretical courses in art and design history. Both received monetary rewards for their works, which are on display in the Knesset building, and in the near future will be hung in all schools throughout Israel.

An Innovative Research Center for Control was Inaugurated at the Be'er Sheva Campus

The center will conduct international collaborations and will serve first- and second-degree students at the Mechanical Engineering Department.

Inaugurating the new research center attended by the College Rector, Prof. Jehuda Haddad (first right). International collaborations are expected.

A festive ceremony marked inauguration of the control center at the Be'er Sheva Campus, led by Dr. Ziv Brand from the mechanical engineering department.

The core subject of the new center is active tremor moderation in flexible mechanical systems. The center will collaborate on international researches and will serve first-degree students in mechanical engineering, and second-degree students performing research works.

Good luck to the researchers and students active at the new research center!

"The World is Progressing towards Investments in the fields of Electricity and Renewable Energies"

SCE hosted the second Electricity and Renewable Energies Convention in the south region, which dealt with innovations and changes expected in the electricity sector over the coming years.

The SCE Be'er Sheva campus hosted the Electricity and Renewable Energies Convention, together with the Electrical, Electronic and Energy Engineers Association in Israel. The convention, which was held for the second time in Be'er Sheva, dealt with expected changes in the electricity sector over the coming years, particularly with the transition to renewable energies.

Esteemed convention guests and participants "An important event at which the brains of the future meet

At the convention, which was fronted by Dr. Dimitri Beimal, head of the College Electrical and Electronic Engineering department, was attended by electrical engineers from leading companies on the market as well as department students and staff members. It was divided into several sessions and included professional panels with the best lecturers.

MK Alex Kushnir, Chairman of the Knesset Finance Committee, said at the opening session: "The growth rate of Israel's population will result in doubling the demand for energy within a few decades. If we do not invest today in large electricity projects and reducing barriers, we will find ourselves on the path to energy shortage. Unfortunately, Israel is not advanced in the field of renewable energy as would be expected from a 'start-up nation' with so much sunlight. I regard this convention as an important event creating a meeting place for the brains of tomorrow that will have to contend with these challenges. We need to make sure that more young people will regard electrical engineering as a leading and economy motivating profession".

Rubik Danilewitz, Mayor of Be'er Sheva: "When I come here, I am always happy, because here lies the future. Not only of Be'er Sheva and the Negev. When you connect human resources and creative thinking with a place the enables growth, you can change the world. And the world is heading towards investments in energy and electricity: renewable energy projects, electrification of public transport – such as Israel's trains and the light rail currently being planned for Be'er Sheva, the solar-panels revolution at schools and more. These conventions are inspiring and lead to more collaborations, which are good for us all. The young people sitting here alongside excellent professionals, should already be dreaming of our future. We can see the climate crisis and how the world feel asleep at the helm. We are all responsible for thinking about how to advance this world to a better place, for the coming generations".

Professor Semyon Levitsky, SCE President: "The College is pleased to be partner and host the Electricity and Renewable Energy Convention. The College's collaboration with professional unions is very important to promote new forces into market sectors. The Electrical Engineering department was one of the first to be established, and each year the engineers it trains enter the industry, integrating into key positions. We are certain this trend will continue and increase over the coming years".

Emil Koifman, president of the Electrical, Electronic and Energy Engineers Association in Israel: "I am proud of and pleased with this annual convention in the south, which attracts many professionals and its participants are exposed to many projects on the Israeli market. We at the Association can see the trends, headed by the many projects in the field of renewable energy, and are certain that these projects will attract many engineers in the fields of electricity and energy to the country's south".

Investing in the Future Generation of Chemical Engineers in Ashdod

For the first time since the Covid Crisis – the Chemithon is back! Pupils in chemistry courses at Ashdod high schools have succeeded in developing creative solutions to various challenges proving an open mind and impressive skills

Pupils from chemistry courses at high-schools throughout the city of Ashdod assembled at the SCE Ashdod campus for a Chemithon, held in conjunction with the "Admat Agan" company and the chemistry section at the Ministry of Education. The Chemithon is a hackathon in the world of chemistry – a prize winning competition for grade 11 and 12 pupils. The pupils are divided into groups and are asked to propose solutions for problems and challenges in the various worlds of chemistry that are associated with all our lives.

This year there were ten competing teams, from seven high-schools in Ashdod. The challenges were presented to the teams 48 hours before the competition commenced, and on the day 12 hours were allotted for developing applicable solutions.

The groups were accompanied by experts from the industry and academia who listened to their ideas and assisted them in progressing by properly using the principles of chemistry. During the day the pupils attended various workshops, such as a creative thinking workshop, and how to pitch ideas workshop.

After long hours of work, during which they enjoyed some treats, the groups presented their solutions. The panel of judges, comprising members from the industry, academia and education, chose the teams that proffered the most applicable and best solutions to the challenge.

Pupils in ODT workshop

Pupils work in teams to propose solutions to challenges in the workplace

The winning criteria included: recognition of the problem and providing an answer, creativity and innovation, level of development achieved within the time frame and the technological-engineering effect of the proposed solution on society and the community. The team members that reached first place won new tablets, second prize was cordless earphones and third prize winners received gift cards.

The monochromatic team from Makif Het high-school, that developed a unique and environmentally friendly paint for the vehicle industry, based on chitin, won first prize.

Second prize was won by the Krutenoids from Makif Zayin high-school, who developed a unique top for yogurt that signals product validity, to reduce unnecessary food wastage.

Third prize was shared by two teams: the Black Team from Makif Aleph high-school, which developed a unique stopper for milk bottles that signals product expiry, and the E-140 group from Makif Zayin high-school that developed a method of protecting piping from rust through a unique form of spraying.

Ilana Sisu, Community Relations Manager for Adama, said: "I am excited that the Chemithon has returned after the long Covid crisis break. It is an event that connects the industry, academia, the Ashdod Municipality and the Education Ministry in a mission to promote chemistry studies in the city and expose the pupils to research in the field. The pupils have to show team work abilities, which are the key to success for future generations of chemical engineers. We, at Adama, hope that through the Chemithon partnership we have managed to imprint the joy of research and of invention into the pupils and to grow a future generation of Israeli researchers and inventors in the field of chemistry".

Dr. Michal Goldberg, head of the Chemical Engineering department on the Ashdod campus stated that the competition was designed to present the pupils with the world of chemistry and the endless possibilities of knowledge in this field. "Everything in our lives is associated with chemistry; it is a foundation stone for all technological developments and the basis for every process and invention. The challenges presented to the pupils as part of the competition are no less than the challenges facing research and development units at leading institutions in the world, and they showed impressive development and solution skills, no less than many experts in the field. Their being young, open minded and with different thinking is a fantastic advantage".

Speaking, Learning and Promoting Quality

SCE hosted the annual Quality Convention in the south, after two years of its being held via Zoom. The Negev Medal for excellence in quality was awarded to Amir Brosh, Global Quality Manager for the SodaStream company.

The seventh annual quality convention of the south, which was held by SCE for the first time since the Covid crisis, dealt with the fields of quality and excellence, with emphasis on innovation and advancement in the field of quality. The event, which was attended by senior representatives from large companies on the economy and from the IDF, included lectures by some of the best quality experts in Israel.

As part of the convention, the annual Negev Medal for excellence was awarded to Amir Brosh. Global Quality Manager at the SodaStream company. The committee that unanimously chose Amir, stated that as part of his position, he established an active quality measurement, which became the global measure. Amir believes that quality people have to think positively, have persuasive skills, be able to foresee problems, be flexible in their thinking and able to harness, educate and train. Among others, he established a global quality convention at the company's gas filling station in Holland, and regular workshops for company employees, distributed messages on quality at the company plants and emphasized the importance of the subject for all workers. These actions, and many others, have become part of the company's DNA, and another factor in its business success.

Awarding the Negev Medal for excellence

Prof. Dorit Tavor, Convention Chairperson, gave a welcoming address and said: "We are proud to be hosting the convention once again at SCE, after two years of holding it via Zoom due to the Covid restrictions. The convention is a meeting place for all those dealing in the field, to learn, speak and promote the field of quality. Throughout the years of the College's existence, it has sent many of its graduates to integrate into the industry in a wide rage of roles that participate actively in production and quality processes. I thank our partners in the Manufacturers Association South Section and the Israel Society for Quality in the south, for their assistance and support in holding the convention".

Amir Hadas, Chairman of the Manufacturers Association South Sector: "We, in the industry, want quality and promote quality. We want our plants to produce the best and highest quality product, and do our best to prevent mistakes. Industry is forging ahead to uphold new international quality standards".

Sharon Anker, Chairman of the Israeli Quality Society in the South: "The convention is an arena for professional enrichment and for sharing, a significant platform for promoting dialog in the field of quality. Wisdom of the masses is an effective and necessary tool to perpetuate quality and therefore the Society is acting to promote many more meetings, for all factors in the industry".

The closing session of the convention was officiated by Dana Sadeh Ophir, Manager of the Manufacturers Association South Sector.

Standing Up with Ease

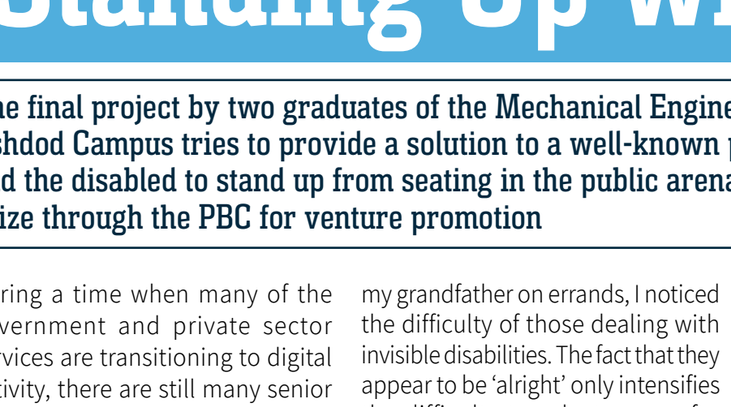
The final project by two graduates of the Mechanical Engineering department on the Ashdod Campus tries to provide a solution to a well-known problem and assist the elderly and the disabled to stand up from seating in the public arena. The project won the CHE prize through the PBC for venture promotion

During a time when many of the government and private sector services are transitioning to digital activity, there are still many senior citizens, who are not familiar with the digital revolution, who visit the actual premises, which are not compatible to the difficulties they contend with.

A project presented by two graduates of the Mechanical Engineering department on the Ashdod campus proposes to facilitate them. “My grandfather broke his pelvis and had to contend with a new situation, being still independent and active, but with movement difficulties”, says Naor Oliel, age 26 from Rishon Lezion, who presented the project together with his fellow student, Aviel Ohayon, age 28 from Ashkelon. “When I accompanied my grandfather on errands, I noticed the difficulty of those dealing with invisible disabilities. The fact that they appear to be ‘alright’ only intensifies the difficulty to ask strangers for assistance in standing up from a chair, for instance”.

Aviel explains: “The idea arose from the personal story of Naor’s grandfather, but I immediately realized I was also interested. It is a situation we all encounter in our daily lives, and it was obvious to that it is necessary to provide assistance in this seemingly simple action”.

The project they presented is a system that is attached to existing seating in public places: benches separated into individual seats. A simple connection of the system to the seat allows for easy disconnection, and a simple pressing of the button on the hand rest will tilt the seat enabling easy standing up.



Aviel and Naor presenting the project

The system performs the action with four engines that enable linear movement, and which are attached at under the seat. They have been designed to withstand differing loads and will lift the seat at an angle that supports the back part of the seat allowing for leaning and offering a safe angle for standing up. The system was designed so that at first glance there is nothing out of the ordinary, “All visitors to public institutions sit on the same bench, but one of the seats will have the special button that assists in getting up”.

As part of our research, we discovered that 15% of the world population contends with disabilities, and in Israel it is 20%, including those with temporary disabilities”, details Aviel. “We found out that there are many public expanses in Israel that do not address people with movement disabilities, particularly the elderly, who continue to visit places like branches of the National Security, banks, post offices, etc., and we were looking for a solution for them”.

This is not the first project by Naor and Aviel that presents and solution for people with disabilities. In the past they resented a handle that assists those having difficulty to get up from a car seat. Throughout their studies they have almost always worked together on projects. “We met during our first year of studies and found we have many common interests,”, says Naor.

Work on the project was not easy, but has already aroused much interest. “When we went out into the field, we met many branch managers who were very interested and familiar with the problem”, says Aviel, and adds: “The process of drawing an idea on paper and working hard on it until it becomes a product that helps someone is greatly satisfying”.,

The two students were assisted by their mentors Dr. Shaike Bilu and Avihai Shorin. “The presence of the two mentors, from different areas of expertise, was very helpful to the process. Avihai assisted with the planning, design and development, whereas Shaike gave pointers and assisted in directing our thinking outside of the box. But most important of all is that they both gave us the freedom to realize our idea”.

Dr. Bilu: “Many final projects deal in developing engineering solutions for various populations – senior and elderly citizens, impaired and disabled populations, etc., it is part of the department’s vision, led by Dr. Guy Ben Hamo and the College, to improve the quality of life of these populations using advanced technological means”.

Apparently, the choice by both of them to study mechanical engineering was not obvious. “I was actually thinking of civil engineering or architecture which connect me to my father’s creativity as a carpenter and self-employed person”, says Aviel. “At the conclusion of the preparatory studies I discovered mechanical engineering, which is a vast world with many fields that include planning, design and creation of products. I am very pleased with my choice’. By comparison, Naor speaks about having naturally gravitated to the field: “I was always interested in how things work. I used to dissemble and reassemble mechanisms to see how they function, to discover the ‘behind the scenes’ of the product. Mechanical engineering studies are challenging in every way, and they provide a different view point on the world. You understand how things work and function. There are many practical projects and it is what I was looking for”.

We recently received news that the impressive project won the CHE prize (through the PBC – Planning and Budgeting Committee) for promoting ventures, designed to assist excellent projects to transition from the educational to initiative phase over to the practical phase of establishing a venture into a business. The project participated in the College’s Initiative Center competition. Well Done!

Dr. Bakun Mazor and Dr. August. A fine grant

College Researchers Win a Research Grant Funded by the Energy Ministry

Congratulations to SCE researchers, Dr. Dagan Bakun Mazor, head of the civil engineering department, and Dr. Isaac August of the electrical and electronics engineering department – both on the Be'er Sheva campus – on winning a research grant funded by the Energy Ministry for the sum of 537 thousand shekels for three years.

The winning research, “Evaluating mechanical features of quarry rocks through hyper-spectral imaging”, is the continuation of a research project funded by the Energy Ministry over the past two years, designed to develop a tool that would enable the evaluation of engineering features in rocks using remote sensing.

We wish them both a continued fruitful and successful research!

The Effect of Shade from Trees on Moderating Urban Heat Load

Dr. Peters at the UN COP27 climate convention in Sharm-a Sheikh

An international study conducted, inter alia, at the SCE park in Be'er Sheva, placed sensors to assess climate and ground conditions and laser surveys were made to reconstruct the three-dimensional structure of the trees, to "extract" features such as canopy area, volume and tree height to determine the shade

Dr. Aviva Peters, Architecture Department, Be'er Sheva Campus

In preparing for climate changes the Israeli government in 2022 approved a national program for shading and cooling of the urban expanse lining streets with trees. According to the program, by 2040 some 450,000 trees will be planted along 3 million meters of streets, at a total cost of 2.25 billion shekels. The purpose of the program is to achieve 70% shading along sidewalks.

Trees in cities are extremely important for the environment, for health and for social and economical aspects. To effectively implement the program and significantly improve walking and spending time in the open public expanse. Understanding is required of how the mature trees affect shading patterns and urban climate conditions. That will enable deciding, for example, on prioritizing tree locations: on what side of the street? What distance between trees will achieve the coverage required for necessary shading? What should foliage density be? These decisions will enable the creation of continuous and quality shading that will affect the comfort of city dwellers and encourage walking, spending time and being active in open public spaces.

At the UN COP27 climate convention held in Sharm-a Sheikh, the Israeli pavilion, in a panel on cities, climate and sustainability, presented a study that focused on the effect of trees on urban climates using an analysis of their shading patterns and their effect on human comfort conditions. This is in fact part of a more extensive research that deals with Ecological Services on trees in cities during climate changes. It is funded by the German Research Foundation -DFG, and is a collaboration between the Technical University of Munich, Desert and Dead Sea R&D, the Volcanic Institute, and together with Palestinian and Jordanian researchers.

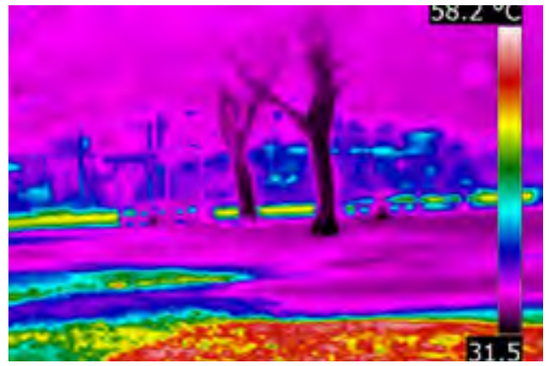
The study focuses on cities located in different climatic conditions, such as Be'er Sheva and Munich, in order to analyze the differences in the function of trees in cold and moderate climates compared to their function in dry and arid climatic regions. As part of the study unique Tree Labs have been established in the various cities, one of which in the main park at SCE Be'er Sheva. During 2020/21 continuous measures were taken, that included placing various sensors to assess the climate and ground conditions and characterize the state of the trees. Measures were also required of the street trees in Be'er Sheva, Munich, Akaba and Jericho.

In order to develop 3D models of the trees, laser scans (lidar) were made of all the trees in the College Park, using a ground laser scanner, performed by the Ofek Aerial Photography Company. Laser scans are a technology based on sending laser beams at high power and frequency. The result is a million dotted high-density cloud (a dot per centimeter) allowing high precision 3D reconstruction of the tree's dimensions (canopy and skeleton), "to retrieve" characteristics such as canopy area, volume and tree height to assess the resultant shade. In addition, continuous measurements were made using a mobile meteorological station, enabling mapping of the spatial changes in micro-climatic conditions and the thermal comfort during different times of the day and during the different seasons and to assess the effect of the trees location and of their shading on these conditions.

The study has not yet been completed; however, it is already possible to conclude that continuous shade has great importance in reducing urban heat load. Therefore there is great importance in determining the distance between the trees planted for the spatial disbursement of trees in the field, the type of trees used and their foliage density. The study findings will assist planners and decision makers in optimally designing the location of trees within the urban expanse, in order to reduce heat load during the summer months. This is particularly important for hot climatic regions, where shade is vital to enable spending time in open public spaces and for creating healthy and sustainable cities.

The lidar dots cloud of each trees and the tree canopy (foliage) footprint for trees in the SCE Be'er Sheva Park (orthophoto from the GIS site of the Be'er Sheva Municipality /https://gis.br7.org.il/apps/br7)

Thermal images enable assessing the temperatures of the various surfaces and the effect of shade on them



The lidar dots cloud before initial processing allows 3D modeling of the trees and their shade

“The Iron Man” – Not What You Thought!

Dr. Yulia Penso, Chemical Engineering Department, Ashdod Campus

We all know that iron is important for our health. Our bodies require iron to create the protein called hemoglobin. Hemoglobin functions like a tow-truck, carrying oxygen to all parts of the body. Iron is vital for growth, making it essential for children. An iron deficiency in pregnant women is associated with low birth weight in newborns. Lack of iron causes fatigue, agitation, depression, lack of concentration and many other symptoms.

If so, you would think that the more the better, and that the consumption of such an important mineral should not be restricted. Yet, believe it or not, our bodies can store iron and it is easy to run into surplus. Moreover, iron surplus, and not deficiency, is far more common and is even hazardous to our health.

Have you ever been referred by your doctor to check whether you have “stored” iron levels that are too high? According to ongoing dialog, we only hear about deficiencies. It should be noted that the danger of surplus iron is found mainly in men and women after menopause.

It is important to understand and recognize the dark side of iron and how to contend with surpluses. What, if so, are the dangers?

Let’s begin with the end: Surplus iron will advance aging and shorten life! That is one of the reasons why old age homes are populated with more women than men. Yes. Indeed! The average life expectancy of women is higher than that of men, inter alia thanks to 30 years of menstruation, through which women manage to rid themselves of surplus iron. We even know what the molecular mechanism is through which injury is made to our body cells.

Research shows that a high level of iron causes irrevocable damage to all our organs. It increases risk of cancer and vascular and heart disease. Here too, we see that heart attacks are more common in men than women. With the onset of menopause, women begin to “line-up” with men on this matter.

Enriching food with iron, which began about 70 years ago, aligns with the continuous increase in population obesity! Remember? Iron is a growth factor. Leading scientific literature indicates a connection between weight increase and obesity and surplus iron in the body.

There is also a connection between type 2 diabetes and surplus iron in our bodies. Men with high iron levels are 2.4 times at greater risk of developing diabetes than men with normal iron levels.

Iron surplus also leads to the development of infectious diseases, by the multiplication (flourishing) of disease generating bacteria and fungi.

And we haven’t said anything yet about brain degenerative diseases, such as Alzheimer and Parkinson…

The good news is that surplus iron is easy to diagnose. All that is required is a simple blood test. In my opinion it is one of the most important tests, which everyone should do as part of their periodical tests. Please note, what needs to be tested is not your levels of iron, but a protein called ferritin! It is the protein that stores iron, releasing it according to body requirements. It is the only reliable and correct index to determine surplus iron in our bodies and aging related states of infection. I will add that the top limit level of ferritin the health funds define as normal is significantly higher than the values that have been indicated by scientific literature for many years. It is unfortunate that this has not been adequately updated. A perfect ferritin score is between 40-60 ng/ml. A level lower than 20 indicates an iron deficiency and a level higher than 80 indicates that intervention is required!

Other than menstruation, the body has no mechanisms for getting rid of surplus iron, The best, simplest and most effective way of getting rid of surplus iron is to donate blood. One donation reduces the ferritin level to between 30-50 ng/ml.

You should donate blood for purely selfish reasons! Research shows that the chances people who donate blood of having a heart attack or stroke are 50% less than those who keep their blood to themselves. A study that included 30 thousand people, showed that “regular” blood donors feature absence of resistance to insulin and relatively low risk of developing diabetes. In addition, the risk of blood donors developing cancer ins 37% less.

When you go to donate blood, you are first and foremost increasing your own life expectancy and arresting the development and progression of many diseases. And at the same time you may save someone else’s life. As they say – a complete win-win!

A decision supporting model proffered by researche

The method developed by the researchers includes some improvements and advantages over existing methods, even the most advanced.

The module is based on customer criteria and quantitative values retrievable from organizational data systems to manage customer relations (CRM). Customer marks are calculated objectively based on measurable criteria, using proven ranking methods and without subjective human evaluations.

Existing ranking methods classify customers into segments or sections. For example: platinum, gold, silver and bronze (the best customers are in the platinum section and the worst in the bronze section). The proposed model can precisely determine the relative location of each customer within each section and enable monitoring of their location and of other changes in their situation that occur over time. It also enables the complete and precise ranking of customers according to criteria set by the company. The model can be computerized to produce speedy results at all times, using updated information.

Design of the model is based on feedback received from a survey conducted amongst managers. It was successfully applied in a real organization, that decided to operate it, as proposed, each quarter (four times annually), as a replacement for ranking that was done once annually. They found the proposed method saves 90% of the time and resources required in the past for managing and ranking customer files. It also allows for objective ranking, as opposed to previous past subjective ranking. The managers of the organization regard the significant contribution of the model in its ability to identify “problematic” customers (customers that required a high level of service and contribute little to profit) and to handle them differently. This ability enabled improvement in the performance of problematic customers and in their relative ranking or to discontinue relations with them. This focused handling led to improved average performances of all customers.

The article was accepted by the scientific community and published in the prestigious Expert Systems journal.

"THE IMAGE FORMS REALITY"

At the year opening event of the Visual Communication department, which was held at the Negev Artists House, students displayed posters on social issues

For the opening of academic year, the Visual Communication department on the Be'er Sheva campus held a festive event, centred around an exhibition titled "The Image Forms Reality".

The exhibition, which was held at the Negev Artists House, displayed posters made by the students during the second semester of their first year studies, in the course on "Design thinking and conveying messages".

The task assigned to the students, together with the College Dean of Students, was to create a series of posters on social issues close to their hearts. The posters were designed to raise awareness and dialog on these social issues and cause viewers to contemplate their stands and actions on the subjects. The subjects on display included: global warming, bullying on social media, abuse within the family, etc.

The event was open to the general public and included a dialog with the artists exhibiting in the exhibition, officiated by Noa Segal, a lecturer in the department. The dialog, which dealt with the thinking and creative processes in making the posters, was attended by students Shelley Odiz, Katrina Doroshenko and Omri Hayut.

Omri Hayut, whose work dealt with abuse in the family, shared how he chose the subject: "We all came with very little knowledge on visual communication, but with a desire to learn and with a connection to Israeli society. When we were asked to think of an idea, we began like an empty page which slowly becomes layered with things we know from our homes and that concern us personally. Fortunately, I did not experience abuse at home, but my exposure to the issue made me want to give it a voice".

The posters prepared by Katarina Doroshenko dealt with stillborn births. "It is a subject not spoken about enough", she says. "It is accompanied by severe feelings of self-anger, alongside by shame to speak about it with other people, to diffuse the pain or even explain how it happened. I came to the subject through someone I know that experienced a stillborn birth, and through her saw the difficulty experienced with exposure".

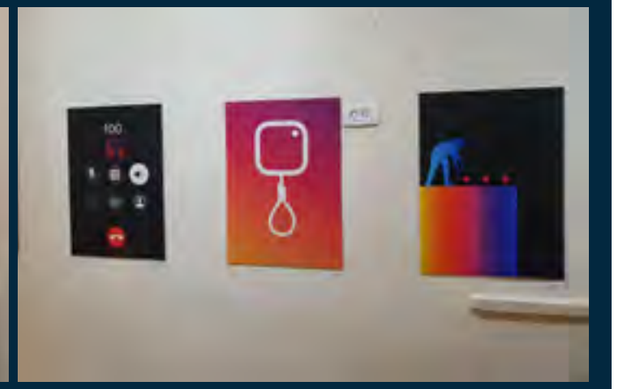
Shelley Odiz, whose work was about experimenting on animals, explained her choice: "Ever since I can remember I have always wanted to speak for the helpless, particularly animals. Over recent years awareness for this subject has increased with the growing discussion on the subjects of vegetarianism and veganism, but the subject of experimentation on animals remains under the radar. I chose to display products that are used on a daily basis, on a background of suffering and blood, to create an effect that would shock but not antagonize the viewer".

Head of the Visual Communications department, Nino Biniashvili, said in her welcoming address: "For the first time we are collaborating with the Negev Artists House. I am pleased for the opportunity to display the students' work to the general public at a cultural institution outside of the College. The department has made its mission to sound the voices of the young people in the south on burning issues. Their artistic way of expressing what is in their hearts is important, as art helps us to be more humane. It reflects, conveys information and allows the creators to sound their voices. Over the years we have become used to these voices being sounded in the center of the country, and I am certain that events such as that of today will increase the sound of young people's voices from the south".

The evening ended with a poetry slam performance by the Incubator Theater, which presented segments of poems on social issues.

This is only the second year of the "fresh" department's existence at the college, with the objective of forming visionary designers well informed in design and technology, with flexible thinking and personal motivation for visual expression. Studies are based on the deep understanding of the role of the designer in the era of science and technology, which is constantly changing and developing. During their studies the students will develop visual erudition, get to know the various digital platforms and interactive design thinking. We have no doubt the works of our students will color the city and enrich its culture in the coming years.

The posters were designed to raise awareness and dialog on these social issues and cause viewer s to contemplate their stands and actions on the subjects. The subjects on display included: global warming, bullying on social media, abuse within the family, etc.



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Planning a Green Future

At the School of Architecture, the first week of the school year was used to learn about the waste crisis in Israel and to receive tools to perform greener planning

סטודנטים לאדריכלות בסיור בדודאים. פרויקטים יישומיים בדרך

A delegation of students from the School of Architecture recently toured the "Duda'im" Recycling and Environmental Education Park in the Negev. During the tour, headed by Tamar Admati, Community Relations Manager at Duda'im, the delegation members learned about the waste crisis and the tools for contending with it.

The students learned about the immensity of the waste crisis and the advanced technologies that already exist at Duda'im and at the Negev Ecology Company, that may assist in its resolution. The tour included a visit to the plant for handling and sorting home waste, established at an investment of 100 million shekels, and which began operating at Duda'im a year ago. Applicative projects are planned in the future between the plant and the students.

The sorting plant already enables the recycling of half of the waste it receives, immensely reducing the amount of landfill. Duda'im is striving to achieve a rate of 80% recycling by 2030. Among others, the delegation learned how building waste is shredded using advanced machinery to form a base for infrastructures.

According to Tamar Admati, collaborating with the academia on this important subject is indispensable. "We believe that the future generation of researchers, engineers and architects will have a significant role in contending with the ever-increasing climate and waste crises. Knowledge of the immensity of the problem and developing innovative tools to deal with it will enable the building of a greener horizon. We were pleased about the attentiveness the students expressed in Duda'im and we are waiting for interesting results".

Netanel Alfasi, head of the School of Architecture: "The school has made its mission to train a new generation of architects, who during their studies will already be exposed to the challenges they will be facing at the end of their professional training. We regard the cooperation with leading companies active on environmental issues, such as Duda'im, to be of great importance to enable students to receive information on the crisis and of the tools available to deal with it here in the Negev. This knowledge will give them a sober view on sustainable architecture, and we hope that collaboration will lead to products that will benefit the region in the coming years.

Developing a Venture for a Successful Start-Up

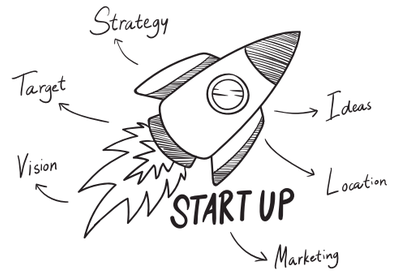
A new learning course at the College, collaboration between SCE and the WeCcelerate consulting company, will enable students to promote technological projects into start-ups with the assistance and accompaniment of experts in the field

A unique collaboration and the first of its kind between SCE and the WeCcelerate Consultation Company led to a new study course: an innovative entrepreneurial course in which outstanding students will develop their technological projects with the assistance and accompaniment of experienced experts in the field.

The program includes two major parts:

An academic course run by members of WeCcelerate, which deals in market researches, consumer surveys, business models, building a marketing plan and a financial plan up to an investor's presentation. At the conclusion of this stage students with the most advanced projects will be selected for the second part, of converting the project into a successful start-up. Throughout the process they will benefit from the accompaniment of company members, adapted to each project and the contents of the academic course. The company has the experience of accompanying hundreds of start-ups and companies, and it offers the students practical tools, one step away from the real world.

An interesting detail: Ido Sabag, Chief Technological Officer at WeCcelerate, is a first-degree graduate in mechanical engineering and second-degree thesis graduate in green engineering from SCE. As a student he participated in the "Engineer- Entrepreneur" program.



Alon Pinchas, WeCcelerate CEO: "The start-up world is fascinating. Over the years we have accumulated a great deal of knowledge on the nature of the work and the ability to advance in the field on aspects of the product, the marketing and raising the capital for development. Collaboration between the industry and academia is not new, but it is the first time that students are being given the opportunity to experience the work of a genuine start-up. I believe that with good working cooperation we will see very interesting start-ups".

Prof. Jehuda Haddad, SCE rector: "I welcome the connection formed with the WeCcelerate consulting company. We at SCE encourage curiosity, creative thinking and imagination for continuous learning and thereby train engineers with top class abilities. Alongside it is important to urge our students to think how they can improve their immediate and more remote environment and support them through unique programs and collaborations that will provide them with the stepping stones to develop the next start-up that will make its mark and affect our world for the better".

"Experiential Academia "– a bridge to the world of employment

A new specialization program integrates students into leading organizations on the market during their studies, and increases their ability to integrate into the future employment market

On todays competitive employment market, inexperienced young people find it difficult to find employment in their field of studies.

The "Experiential Academia" program, opened at the College, and headed by the Career Development Center and the Quality Evaluation and Promotion of Teaching Center at the College, will enable students to specialize at leading companies on the market during their studies.

The program is a joint project with the CHE and the Aluma – Young People for Change Society, founded by the Edmund de Rothschild foundation. It includes professional internship with a personal mentor at the employing company (Rav Bariah, SodaStream, Osem-Nestle, Cambium, Spectronix, Solbar, Cydome and more), as well as a theoretical course on the employment market and the organizational culture present at most companies.

The program is designed to be a bridge between the academic and employment worlds. Participants will increase their chances of gaining experience and integrating quickly into leading companies at the end of their studies, in fields compatible with their fields of study.

The Academic Year of 2022-2023 began with a Festive Happening on Both Campuses

Around 6,600 students commenced studies at the College for scholastic year 2022-2023, including 2,250 students who are in their first year. The number of female students comprises 30% of all students, which will later on increase their important presence in the subjects of engineering and cyber

A joyful happening welcomed the students at the start of the academic year on both college campuses – Be'er Sheva and Ashdod.

4,000 students will be attending classes at the Be'er Sheva campus, of which 1,300 are in the first year. This year there are 2,600 students studying at the Ashdod campus, of which 950 are in their first year. The College noted that this year continued the trend of increasing numbers of female students, which last year already comprised 30% of all students. The significance: an important increase in the number of women in the engineering and cyber professions.

A colorful fair was established on the main lawn area of the Be'er Sheva campus, which included a wall of magnet photographs, food and drink as well as information on the Students Union, which was responsible for the event. Later on, Agam Bochbot, who is also a resident of the city, gave a performance on the main stage, which increased the joyous atmosphere in great style and with hits that made everyone dance.

At the event we met Zuriel Elkaselsy, age 25 from Be'er Sheva, a second-year student in mechanical engineering, who said: “Good vibes, good feelings, a lot of motivation to develop and learn, I am in my second year and am ready for the challenging courses with significant motivation. The College has a support system, and I believe they will assist with whatever is needed”.

We also met Or Elmakayes. Union Chairman, who said: “The learning year opening festivity is our opportunity to welcome the new as well as veteran

students, to introduce them to the Union activities and form a connection through which we will accompany them throughout the year, including events that will add to the joyous learning atmosphere and social and community activities. Not long after, DJ Luda Gross manned his spot and “got the students to fly” with a perfect techno rave to round up the event.

A happy and vibrant atmosphere was also present at the Ashdod campus. The increase in number of students is accompanied this year by opening the gates to high-school students from Ashdod and the surroundings in the LAHAV (Learning Engineering in High-School) program. The program this year includes 52 outstanding high-school pupils, who will participate in academic courses in the Electrical and Electronic Engineering department.

Prof. Jehuda Haddad, SCE Rector: “We are pleased and excited to see the students once again at the college and to march alongside these brilliant minds towards a better world. We are certain that this year the opening of our gates to many and giving them the opportunity to integrate into the worlds of engineering, will prove its power and will produce graduates that will lead the Israeli economy and industry in the coming years”.

The application that will assist welfare factors during emergencies

The missile threat that has extended beyond the boundaries of the settlements surrounding Gaza, have led to a sharp increase in victims suffering from anxiety. To treat this increasing problem various cities have established Resilience Hubs, with the Sderot Resilience Hub being the most veteran, and having to contend with the most extensive number of threats in very short response times. The resilience hubs generally provide important initial treatment for a wide range of incidents that define anxiety victims as persons present in a traumatic event that posed a genuine threat to their physical or mental wellbeing.

Oshri Avraham. Very good news

In a project that resulted from cooperation between the College's Be'er Sheva campus, the Sderot Resilience Hub and the city's welfare department, Oshri Avraham, a graduate of the software engineering department, presented an application for the reporting, summoning and management of information collected by the city's welfare factors in real time. The initial connection was formed between these entities, having recognized the need for a system that would assemble all the treatment data on the city's residents, a need that was identified by the State Comptroller in its report.

The application known as Shahar (sharing welfare resilience), developed by Oshri, allows the resilience hub, the welfare department, the neighbourhood emergency teams and the municipality centre to report, and update events active in the field in real time, to monitor and direct rescue teams to ongoing events and to produce reports saved in the system, to view a city map in real time and to issue critical graphs for decision makers and system managers.

"I began developing the application after having been made aware of the need by the college as part of my fourth-year final project", says Oshri, age 26 from Be'er Sheva, who shared his personal experience. "I immediately knew just how important the matter was and that I wanted to take on the challenge. During my military service, I was present at a terrorist attack and was a firsthand witness to the ramifications of shock and fear that accompany security incidents".

The project was performed under the guidance of Dr. Hadas Hasidim, and began with an introductory meeting with the Resilience Hub and welfare staff, in order to learn from their experience and about the requirements.

"During emergencies there is not much time for preparations, the teams don their protective gear and identification marks with speed and go into the field", says Hila Gonen, manager of the Sderot Resilience Hub. Over the years the teams arriving in the field had to document victim's details in booklets, which made follow-up cumbersome. "We tried transitioning to online reporting using joint Google documents, but being non centralized and shared by so many factors made it even more cumbersome". Another problem, said Hila, is reporting the treatment locations of victims nearby the incident site, as there are streets with similar names. "Sharing locations using an application that is centralized to a war-room desk visible to all the factors involved can save so much response time for the teams in real time", added Hila.

Cooperation between SCE, the Resilience Hub in Sderot and the Youth Welfare Department of the city, produced a system that enables concentrating information for welfare factors treating shock and anxiety victims, in the wake of security incidents.

Avner Hai, a representative of the Sderot welfare department who participated in creating the application, describes how emergency situations and non-digital work hinder welfare factors "At times of emergency, the teams all leave for the incident locations to perform field work with anxiety victims, sometimes there is an overload of people, which may result in not everyone receiving the optimal treatment we want to provide. This overload also makes it difficult to transfer information between organizations causing duplications that delay or impair the treatment process. This necessity made us realize that we are missing a centralizing factor that would compile all the information efficiently and effectively, which would improve the entire process".

A pilot of the application was conducted as part of an exercise conducted in Sderot with all types of users – the resilience administration, the welfare department, therapists, social workers and dispatchers. The system users reported that the application is easy to use and enables quick and effective reporting and response. The ability to report the precise location proved to be effective for treatment time enabling the teams to show map sections of areas where welfare personnel were present.

At first stage the application will be adapted for the Sderot Resilience Hub and Welfare Department, and in the future will be expanded for use by other authorities.

"As far as we are concerned this is very good news", says Hila, "It's the first time that we have cooperated with the college and we found them to be an amazingly attentive team. Hadas and Oshri invested a great deal pf time and took care to listen to all of our comments and to implement them quickly into all development phases".

Dr. Hadas Hasidim says that the challenge now is to complete what needs to be done so that we can be up and running soon and serve the resilience hub and the Sderot welfare department as well as other hubs. According to her, she heartily believes in the "recipe" of collaboration between the academic world and genuine needs in the field, which leads to applicable projects with extensive significance for both student and partnering entity.

Academic Staff

Dr. Aviva Peters

A member of the academic staff in the Architecture Department, Be›er Sheva campus

Aviva Peters, who joined the College as an associate on the academic staff, was born in Columbia and grew up in Haifa. She is a cum laude graduate of the Technion Faculty of Architecture and Urban Building. She completed her second- and third-degree studies summa cum laude, doing the combined course at the Desert Architecture Unit of the Desert Research Institutions at the Ben Gurion University. Her research focused on developing a computerized system to automatically identify urban objects from satellite photos.

After completing her doctorate, she continued to a post-doctorate in the Agriculture Faculty at the Hebrew University, together with the Volcanic Institute and the ATB Institute for Agricultural Engineering in Germany, as part of a European study that dealt with the development of a decision supporting system for precise irrigation. Later on she established a start-up company in the Negev that specializes in the research and development of decision support systems based on artificial intelligence.

I did not consider returning to the academia until the offer to join the new school of architecture came around. I took up the challenge because of the College's unique vision and the opportunity to participate in establishing the first school of architecture in the Negev and in formulating a localized, environmental and innovative curriculum for a region that contends with complex challenges. I currently coordinate the field of environmental studies and spatial computerization at the architecture department, teach the courses on geographical information systems (GIS) and methods of analyzing spatial data, and during the coming semester I will also teach in the Green Engineering second-degree program. My researches deal with the development of analytical tools and models to characterize and understand complex spatial systems. I believe that in order to contend with the environmental challenges we will be facing in the coming years, in Israel and globally, a multi-disciplinary research approach is required, and that is why I like to participate in studies shared by researchers from different fields.

I am a compulsive hoarder of data and digital maps, research 24/7 and love to challenge all narratives, particularly myself and my students. I have been living at the Ben Gurion Midrasha for the past two decades, with my partner, two children and a cat, in a house that we designed and built according to the principles of bio-climatic architecture".

Administrative Staff

Noga Pinto

Administrative Assistant, Student Administration Sector, Ashdod campus

I live in Ashdod, married to Yaki (a department manager at Electra) and mother of four: Abigail (25), Noa (21.5), Jonathan (18) and Adi (11.5). I have a first-degree in communications and management and a second-degree in public policy from the Tel Aviv university. I studied for my second-degree while working at the College, immediately after giving birth to my fourth child.

I began working for the College in 2003, when the Ashdod campus was still at its early beginnings. It can be said that the College and I grew together.

My first steps at the College were at the Electrical and Electronic Engineering Department and in 2007 I moved to the registration sector. With the opening of the Students Administration in 2008, I was appointed student coordinator for the Electrical and Electronic Engineering department, a position that I continue to fill. Over recent years I have also been student coordinator for first- and second-year students at the Industry and Management Engineering Department.

As part of my job, I accompany students from arrival at the department and until graduation. Students are given personal attention and I try to help solve problems they encounter during their studies.

Work gives me great joy and satisfaction and great pride when I see a student who began his journey with us graduating as an engineer, at the graduation ceremonies.

I love my place of work and see it as a second home. The work environment at the College is comprised of a group of quality and professional people, who are also supportive and encouraging. This creates a unique caring family atmosphere.

During my leisure time I do sports and drumming and I love to explore tourist sites. Lately I have been reviewing and recommending various sites.

Lighting up the "Spaceship" in Purple

The College Buildings were illuminated in purple to mark the International Day of Persons with Disabilities

On Thursday night, December 1st, 2022, the Minkoff Building on the Beer Shab campus, referred to by the students as the "spaceship" building, as well as the Celcius and the Bnei Brith buildings on the Ashdod campus, were all illuminated with purple light.

Illuminating the buildings was part of the "Purple Night" project, led by Mifal Hapayis, the Local Government Center, the Regional Government and the "Equals" website. The project, dedicated to the integration of 1.5 million persons dealing with disabilities, into the community, employment and society in Israel, was held for the third consecutive year in conjunction with the International Awareness Day for Persons with Disabilities, held on December 3rd.

The College regards with great importance increasing awareness for accessibility to persons with disabilities and is pleased to take part in this exciting initiative that paints the country purple.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