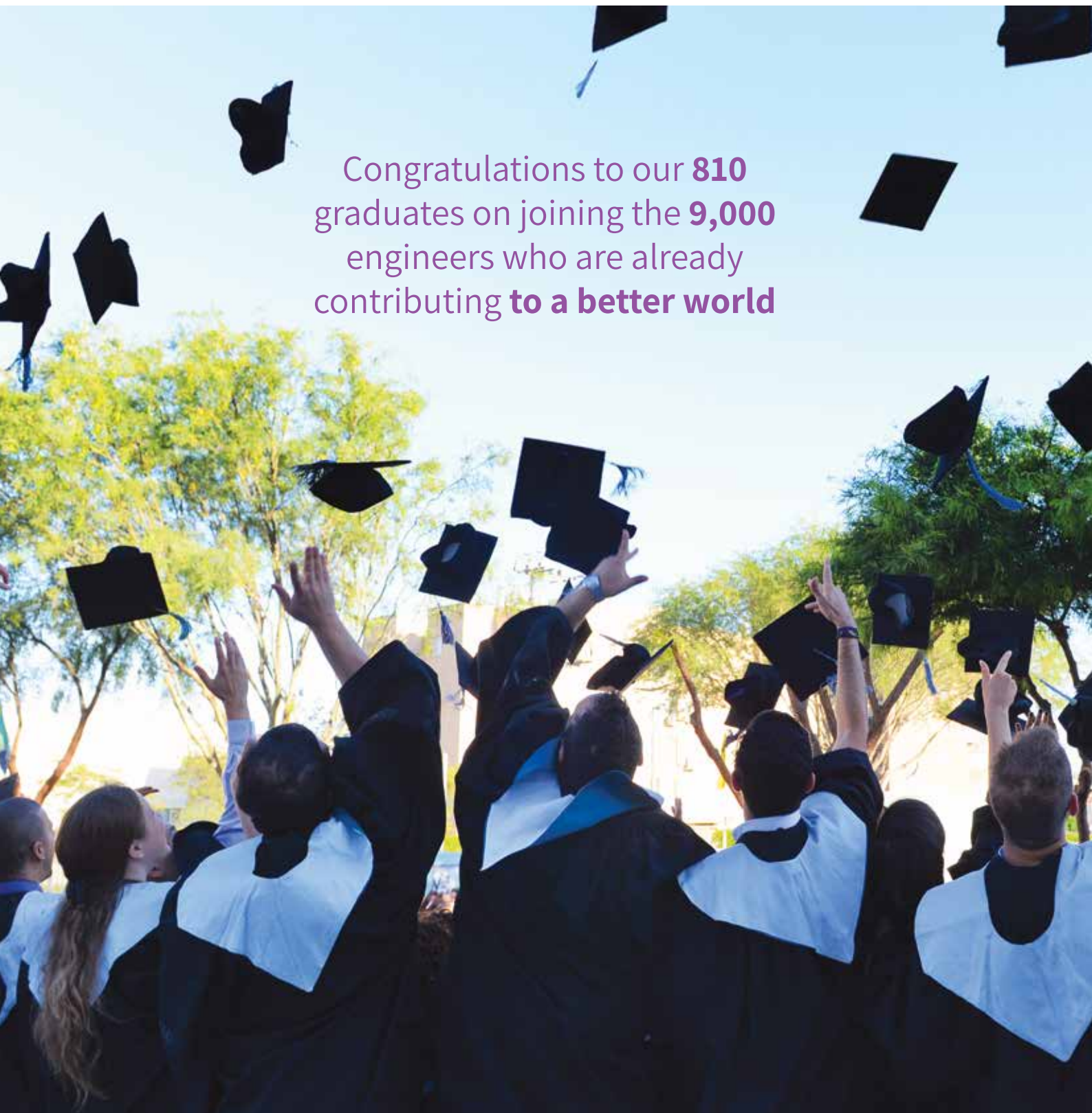


# ENGINEERING A BETTER WORLD

Magazine of the Sami Shamon Academic College of Engineering | Issue 44 | Sivan 5778 | May 2018



Congratulations to our **810** graduates on joining the **9,000** engineers who are already contributing **to a better world**





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## Designing a future: the SCE Designing and Architecture School has begun putting together its faculty and curriculum

**After two years of hard work, the Higher Education Council has allowed the College to submit a detailed plan for establishing a design faculty in Beer-Sheva, which would include architecture studies as well, for the first time in the southern region**

In March we received great news for the southern region and specifically for the College: the Higher Education Council, in charge of expanding higher education institutions and approving their degrees, has allowed SCE to start the establishment of a design school in Beer-Sheva.

The new faculty will include interior design, visual communication and product design studies, and for the first time in the southern region - architecture studies as well. The faculty is planned to be established at the Vered Camp compound in the old city.

The College staff is already working diligently on putting together the faculty and detailed curriculum, which will be submitted to the Council for review.

The College President, Prof. Yehuda Hadad, called this news "a groundbreaking move for the College and for the Negev as a whole," and promised that "the College



will continue to be groundbreaking and innovative." Prof. Hadad wished to thank all those involved in the project, "and particularly our copartners at the Municipality and the Mayor, our dear friend Ruvik Danilovich."

The Beer-Sheva Municipality officials also referred to the Council's decision

as "a historic and important decision for Beer-Sheva and for the entire southern region." They said that "establishing the design school will meet the need and the demand of hundreds and thousands of young people from the southern region, who have had so far to travel to the center of Israel or even further north to study."

Mayor Danilovich called the Council's decision "giant news" and thanked Prof. Hadad for "picking up the glove and taking the challenge set by the Beer-Sheva Municipality." Danilovich also expressed his appreciation to the Education Minister, Naftali Bennet, who personally worked to obtain the approval.

## New at SCE! M.Sc. at green engineering with a thesis

**The program is designed for engineers from a variety of fields, who make or are destined to make decisions which would affect the environment, society, economy and future generations**

The Higher Education Council has allowed the College to open a green engineering M.Sc. program with a thesis in the academic year 5778 (2017-2018). This program is innovative and one of its kind in Israel, similar to green engineering programs that are taught in leading academic institutions around the world.

Green or sustainable engineering is a new model that mainly consists of combining principles, values and environmental awareness with science, technology and engineering. It focuses on a preliminary, comprehensive planning of processes and systems, while minimizing their effect on the environment.

The program will expose the students to the importance of weighing the environmental, social and economic effects when planning, designing, operating or managing systems and processes, and provide them with

technological tools that would enable them to benefit the human and natural environment. It is designed for engineers from a variety of fields, who plan systems, deal with the technological and operative aspects of systems and processes, and make decisions that affect the environment, society, economy and future generations.

The program is open to B.Sc. engineering and natural science graduates. Each student will be given a curriculum adapted to his/her B.Sc. background, and will be required to take complementary courses accordingly.

## From the President's desk



**President of SCE – Professor Jehuda Hadad**

SCE continues to grow and innovate. We are investing in infrastructures, pedagogy, new curricula, academic and administrative staff, and above all – in you, our students and graduates. We have recently been notified that the Higher Education Council has allowed us to begin the establishment of a design and architecture school. This is a groundbreaking, historic move – for us, as an academic institution, and for the south region inhabitants in general.

The College researchers continue to win prestigious grants and awards. We regularly hold academic conferences and social environmental events, which attract academics, industrialists, policy makers and social activists, as well as the general public.

SCE – the Sami Shamoon Academic College of Engineering – is obliged to continue leading in research, excellence and collaboration with institutions and organizations. We are confident that our diverse work is bound to lead us to a better world, and at the same time it grants you, our students and graduates, an initial advantage towards your integration into academia and industry.

Yours sincerely,  
**Prof. Yehuda Hadad**



## “Open information in a smart city”

The hackathon that was held by the Software Engineering Department as part of its AISTQ Conference, placed an emphasis on using applicative technological solutions based on municipal databases, to improve the life quality of the city’s inhabitants

The AISTQ Conference was held in April by the Software Engineering Department – for the third consecutive year - dealing with contemporary software and software-testing issues.

As part of the conference, this year’s students hackathon was held under the title “Open information in a smart city”, in conjunction with the Center for Digital Innovation (CDI) Negev and the Beer-Sheva Municipality. The students were asked to present an engineering-technological solution that would make the information in the municipal databases accessible to the public, and improve the inhabitants’ life quality.

Dr. Hadas Chassidim, who initiated and organized the conference and the hackathon, said: “The idea was to find applicative technological solutions to a problem which the competitors would choose to solve – a social, educational, health, economic, environmental or safety problem.”

During the ceremony in which the winning teams were granted their awards, Prof. Yehuda Hadad, the College President, pointed out: “We work to educate the



students to be creative and to develop ideas that may benefit society.”

The Chairman of the Judging Committee, Yoav Caspin, CTO of the Digital Israel project at the Ministry for Social Equality, complimented the students for having made impressive achievements in the short time they had at their disposal, and said: “The ecosystem created in this town is amazing. It’s exciting to see so many students focused on municipal problems that concern all of us.”

Beer-Sheva Mayor, Ruvik Danilovich, said: “Thanks to you, we can be the city of the future and announce the future in

a lot of areas. We encourage you – and even compel you – to dream and lead the change.”

The first place and a prize of ILS 4,000 were won by a team from the Software Engineering Department at Ashdod Campus, for developing an application called Open Shelter, which uses the shelter data from Beer-Sheva’s Open Data. When a real alarm is sounded, the application traces the closest public shelter and opens in the user’s device a map showing a walking route. Upon arriving at the shelter, an automatic message is sent to a list of people which the user has chosen in advance, using

a Beacon sensor that sends Bluetooth signals, and notifies them of his/her location. The application also addresses the absence of a public shelter at a reasonable distance, by referring the user to a residential building or displaying defense guidelines in an open area.

The second place and a prize of ILS 2,000 were won by the Hoodinipush team from Haifa University, for developing an interface to promote local business owners. The application is based on Beacon sensors, which detect passers-by within a radius of up to seven meters (7.7 yards) from the business, and send messages to the users according to their interests and profile (coupons, promotions etc.).

The third place and a prize of ILS 1,000 were won by the Baliga team from the Software Engineering Department at Beer-Sheva Campus, for developing an application that allows social interaction based on municipal sports infrastructures.



The users can choose their preferred sports area, and get invitations to sports games in that area, look for a vacant field, contact the municipality regarding faults in the fields etc.

### AISTQ Round Table

Simultaneously with the hackathon we had a Round Table, participated by about 20 representatives from the academia and the industry, on the subject of “Software

quality and software testing challenges in view of the changes in software development models and methods”.

The debate has opened communication channels for bringing up ideas and challenges and for finding common solutions, and formulating them into a position paper which would be published in a journal.

## “The day after”: a seminar for civil engineering students

“The day after” conference, participated by third and fourth year students from the Civil Engineering Department, has opened a window to graduating and entering the work world

Graduating from college and entering the work world is not an easy stage for many students. Therefore the Civil Engineering Department decided to hold “the day after” conference, in conjunction with the internet portal CivilEng. Third and fourth year students from the department were invited to a series of lectures and to a round tables panel with qualified civil engineers, some of whom were even graduates of our College.

The conference was opened by the Head of the Department, Dr. Dagan Bakun-Mazor, who said: “When you leave the College, you’ll be high-quality

engineers who are ready to work in the industry. One of our most important tools is working in a project-oriented environment, as we have done for the last six years. By doing this you learned to implement your theoretical knowledge while experiencing the solution of engineering problems already in college.

“This seminar is another way for us to strengthen the tie with the industry and with our graduates. It’s intended to provide you with tools to choose the right courses for your future careers and prepare you for the work world in the field of civil engineering. The conference

is important for everyone – for us as a college, for the industry, which gets good students, better prepared for work, and of course for you, our students – who get practical tools for finding your way into the industry and developing your careers.”

After Dr. Bakun-Mazor, Nir Yanushevsky, a construction contractor, spoke of innovation in the construction industry.

The students were invited to a round tables panel, guided by Liran Levin from CivilEng, where they met engineers who answered their questions about the work world, how to write a C.V., and got tips about how to succeed in job interviews.





## A few surprising facts about hormones

Many physical, behavioral and emotional actions we do are attributed to our body's hormonal control ■ Is it possible to control the hormones' dosage in the body? And why – although we always believe we are right – is nature smarter than us?

**Dr. Julia Penso, the Chemical Engineering Department, Ashdod Campus**

Thousands of actions taking place in our body every second would not be happening if it was not for hormonal control. Physical, behavioral and emotional actions are attributed to the control of these chemical substances produced by our body. Still, many of us do not attribute the physical changes or the shifts in mood and social behavior to changes in the quantity of hormones.

Is it possible to control the hormones' dosage in our body? Is the modern era affecting their production? And why – although we always believe we are right – is nature smarter than us? **Here are the stories of five hormones, which provide us with several surprising facts:**



### Oxytocin – the love hormone

The oxytocin hormone is the most amazing and surprising single molecule in the world. One of the researchers once said that oxytocin is what makes us human. This hormone has a tremendous effect on our brain and is called by innumerable nicknames: “the trust hormone”, “the hugs’ hormone”, “the love hormone” etc.

Oxytocin has many diverse effects, including our ability to create emotional, romantic and social relationships, friendship and trust, and deal with anxieties and stage fright. Oxytocin increases generosity, helps in depression and post-trauma situations, enables us to feel empathy and even improves autistic children's communication. Inability to produce proper amounts of oxytocin characterizes individuals with anti-social

behaviors in particular and manipulative individuals in general. Oxytocin is also helpful in curing wounds, due to its anti-inflammatory quality, and was even found to be a pain reducer.

And here comes the good news: it is very easy to get/produce the wonderful hormone. There are several ways that allow us to get a “boost” of oxytocin; all you have to do is touch or hug someone or even shake their hand. For example, right after a baby is born it is placed on its mother, and they both start producing oxytocin and have it flow through their bodies.

Another way of producing oxytocin is by looking at the people we love; even thinking of them will do the job. There is no better way than having a meal with family or with friends to strengthen the ties, and oxytocin will do the rest of the job for us.

And a little something for desert: the charm is not limited to humans; it includes your pet animals as well! Spend five minutes with your puppy – and the level of oxytocin will leap in both of you!



### Melatonin – not just “a sleeping pill”

Melatonin is the sleep hormone, but not many of us know that it is also in charge of activating our biological clock. The body produces the hormone naturally: it is released by the pineal gland at night fall. The pineal gland, which is far deep inside our brain, is also called “the third eye”, and mystical forces have been attributed to it since ancient times.

Melatonin sets the biological rhythm of every cell in our body and plays a

crucial role in the functioning of the immune system.

This is a powerful anti-inflammatory, antioxidant substance with the ability to inhibit cancerous tumors. Studies have found a higher frequency of breast cancer among women with a low level of melatonin. Furthermore, it slows down the aging process! The problem is that the level of melatonin begins to decline with age (and that is why the older we get the less hours we sleep and the earlier we wake up in the morning). Lack of melatonin causes various disorders such as memory loss, learning difficulties, depression, increased risk of breast and prostate cancer, obesity etc.

Blue light was found to be a most powerful inhibitor of melatonin production. The paradox is that for the last twenty years we have been surrounded by a variety of screens emitting blue light!

Following a study conducted at Harvard University several years ago, and the unequivocal conclusions derived from it, the telephone companies have started producing devices with a function that filters the blue light. All we have to do is remember to turn it on when we use the smartphone!



### Endorphins – the recipe for a happy marriage

The word “euphoria” is the best description for what we feel when the endorphin is active in our body. However, this hormone was not created to make us happy; it is released by physical pain! When we are wounded, the endorphin screens the pain for a short while to allow us to keep functioning with full

capacity, and by doing that it contributes to our ability to survive. It allows us to fight for our lives in spite of the injury. During a pregnancy, the level of endorphin gradually rises, and during childbirth it reaches levels that characterize athletic men while they are training at maximum intensity!

Social pain, on the other hand, would not cause us to release endorphins, nor will a broken heart. But broken bones most certainly will!

In the modern world, we suffer less and less from physical pain, which used to be an everyday matter for humans in the past. It seems we no longer need endorphins... but that is not true! In recent years we have come to realize what important and diverse effects the endorphins have on our health, pleasure, immune system, our general well-being, and even our relationships. The endorphins help us fight depression, anxiety and distress. They help us increase our self-confidence, and probably also help with our appetite regulation.

It was found that the longer a couple has lived together, the better are their chances to stay together. One of the explanations for that is getting addicted to the endorphins that result from the peace and serenity of marriage. A lack of endorphins is also the “cause” for the longing the spouses feel when they are apart.

Physical exercise is a good way of getting a “dose” of endorphins. If you walk into a gym for the first time, or have a run/walk for the first time, you are most likely to come home happy and inflated with endorphins. What you can easily do in order to challenge the endorphin production is to carry out diverse and unconventional training, and this way activate a different group of muscles each time.

Another way of getting endorphins is to stretch (take an example from your dog or cat – they know what makes them feel good). The stretching has to be full, to the point where you begin to feel the pain.

Crying and laughing (but not a phony laugh!) causes the production and release of endorphins, because they make the deep muscles contract. Spicy food will also do the trick, and chocolate for dessert can also be good.



### Does the growth hormone only affect our height?

We have all heard about the growth hormone. In keeping with its name, it is in charge of growing. Most of us also know that this important hormone is released at night, and therefore it is critically important to take care of the children's sleep hours in order to realize their growth potential.

Not many people are aware of the fact that even after having grown to our full height, the growth hormone continues to be an essential component of our health and body maintenance. It supports and maintains the muscle mass, strengthens the activity of all components of the immune system, affects our mood and behavior and increases fat burning.

Therefore we must continue nurturing the growth hormone's release even after we have finished growing!

After the age of 20 there is a gradual, constant decline in our ability to produce the growth hormone, and as a result we lose our muscle mass and begin to accumulate fat.

There is a variety of actions we can take in order to reinforce the production of this important hormone even in late ages. An important parameter, which we mentioned before, is the sleep quality and length, but that is not enough! This is where our eating habits come in: food rich in protein will increase the production and release of the growth hormone. High sugar levels in our blood after a meal, resulting from a high simple carbohydrate diet, will inhibit the production and release of the growth hormone.

Physical exercise is another essential factor in maintaining proper growth hormone levels.



### Adrenalin – does it work for us or against us?

We have been telling people for years: “Stress makes you sick; it increases your chances of contracting any possible illness – from common cold to heart diseases and cancer.”

A comprehensive study that observed 30,000 adults in the U.S. for eight years, indicated that among people who experienced a great deal of stress in the passing year, the mortality risk was 43% higher - but that was true only for people who believed stress was bad for their health. People who experienced a great deal of stress but did not consider it damaging, were not at a higher risk of dying. In fact, they were in the lowest mortality risk among all the research participants, including those who experienced relatively low stress levels. The science says: once you change your mind about stress, you can change your body's reaction to it. We all know the feeling when our heart starts beating hard and we start breathing heavily or sweat. We usually interpret these physical changes as anxiety, or a sign that we are not handling our stress very well. But what if we considered these changes as signs that our body is getting filled with energy and preparing us to face the challenge? The heart beats are preparing you for action. If you are hyperventilating, it is not a problem – it injects more oxygen into your brain. Once people start considering the stress reaction as productive to their performances, they will be less stressed, less anxious and more confident. When stress is taken in a positive way, it seems that the blood vessels remain loose, and the heart diseases attributed to continuous pressure can be avoided or diminished.

Our lives are filled with stressing experiences, so this single change can make the difference between getting a heart attack at a young age or living a good life and passing the age of 90. Use the information science provides you, and in this case – that it is highly important how we interpret stress.

## Allocating budgets to fund research in higher education institutions – the games theory approach

A unique model, based on the games theory, can help decision makers determine the size of the optimal research budget and how it should be distributed among academic units in higher education institutions

**Prof. Yossi Hadad, Prof. Baruch Keren and Prof. Yizhak Minchuk**

Academic institution decision makers often debate on determining the size of the research budget and how it should be distributed among the academic units. Allocating an appropriate research budget to the academic units may increase the research outputs and their quality, and by doing that improve the academic institution's reputation and its ability to raise external research budgets and attract students.

The article proposes a unique model, based on the games theory, which can help decision makers determine the size of the optimal research budget and how it should be divided among academic units (researchers / institutes / departments) in

higher education institutions.

The model sees the institution's management as a competition organizer and the academic units as competitors, who compete against each other over the prize (the research budget). The model is suitable for a case where there are two competitors (academic units) with different research abilities, or an unlimited number of competitors with the same abilities.

The model allows the users to determine the size of the reward (the optimal research budget) and the optimal way in which it should be distributed. The distribution of the prize may be based on competition or on a fair division among the candidates. The study presents a practical example that demonstrates the model's applicability.

In addition, the article offers a method that

enables us to evaluate the research abilities of the academic units in the institution and choose those of them with the highest abilities, to participate in the competition.

The research budget is derived from the participants' abilities, from the cost of raising the required budget and from the benefit to the competition's organizer. High capabilities of the academic units, a low cost of raising the budget and high benefit for the institution from the competition's products, will produce a higher optimal research budget.

The model is also suitable for other implementations where one should allocate budgets on a competitive basis. For example, research and development budgets or cultural budgets for institutions like theatres, opera houses and concert halls, or sports budgets.

## Sabotage in competitions with regulation and effort monitoring

The article examines the question: what is the level of supervision over the competitors that would ensure a fair play and higher benefit for all players?

**Prof. Yossi Hadad, Prof. Baruch Keren and Prof. Yizhak Minchuk**

There are many competitive situations (like sports or political competitions, internal work disputes) in which the competition participants take "sabotaging" actions to win the competition, by "hurting" their competitors. Clearly, the sabotage efforts taken by the competitors will be greater as the prize offered in the competition is higher.

In order to ensure a fair competition, there are supervision measures and

various regulations whose aim is to prevent or minimize the sabotaging actions. The article examines the level of supervision over competitors which would ensure a fair play and higher benefit for all players.

The competition model we have developed contains three stages: in the first stage, the regulator determines the level of supervision efforts he/she has to apply for each competitor. In the second stage, each competitor determines the level of his/her sabotage efforts, based on the supervision level laid on him/her by the regulator. In the third

stage, each competitor determines the productive efforts he/she will put into the competition.

According to the proposed model, it is possible to calculate, at the break-even point, the regulator's optimal supervision efforts, with or without budgetary constraints. Apparently the higher the supervision level over the competitors themselves. However, too much supervision, beyond the optimal level – which can be calculated using the model – does not help the competitors and even hurts them all.

## A "blue and white" development that detects "fake news"

Researchers in our College have developed a first algorithm of its kind to detect "fake news" on twitter ■ The algorithm allows us to identify distributors of false texts who stand behind a campaign

**Dr. Marina Litvak, Dr. Michael Orlov and Pavel Karas**

In recent years there have been quite a number of activities in the social networks, including the twitter, whose aim was to divert public opinion in favor of a particular subject. Such an activity is called "propaganda", and it often includes the spreading of messages and texts which are far from the truth. These activities are funded by interested parties, including policy makers, government officials, business companies etc.

Very often, the propaganda activity in the social media is distributed from the accounts of regular people, by paid sub-contractors who work under the same roof in various countries. Detecting such activities is crucially important when trying to prevent the distribution of funded

propaganda and false news.

In a research conducted by our College researchers Dr. Marina Litvak, an expert in the field of information retrieval and text analysis, Dr. Michael Orlov, a science and cyber security expert, and Pavel Karas, who joined the research as a graduate student at the Software Engineering Department, the researchers found an automatic way to track down such distributors, through behavioral analysis of the way they use the twitter and by analyzing the contents of the texts they distribute.

The research focused on the twits connected to American politics and to diverting public opinion in the last elections.

Dr. Marina Litvak: "In the course of our research we found a lot of propaganda activity in the twitter network. We tried to find similarities between texts, so that they would lead us to identifying accounts/ individuals that are behind the propaganda campaigns. During our research work, we found innumerable twits showing direct connection between one another."

After identifying the inter-connected twits, the researchers developed a mechanism that would track down and detect twitter accounts that work in an organized fashion. The mechanism allows them to identify similar writing patterns by analyzing the text language (text analysis). This is an innovative development that combines a sequence of techniques to find the required information: the users behind the propaganda campaign.

The researchers developed an algorithm based on many assumptions about the behavior of users who distribute propaganda in a social network, such as: users who work in groups; users who publicize similar contents (or even



identical); users who are much more active than regular users and write in high frequency; the publicized content consists mainly of political issues; the subject of the publications varies according to the "mission"; the publicized content is similar to what is publicized in the public media; etc.

According to the researchers' assumptions, the algorithm automatically identifies "suspicious" users as experts who are working on a certain mission. The algorithm tracks down groups that regularly write information of a similar nature by re-analyzing twits. Users, whose twits were identified as similar in most repetitions of the analysis, are presented as "suspicious" users. The idea is to find a set of users and point to the tendentious use of certain agents, whose purpose is to distribute political propaganda.

The researchers detected seven accounts, some of individuals and some of groups, which they suspected of serving as propaganda distributors in twitter during the presidential election campaign in the U.S. in 2016.

The algorithm can serve as a tool for the use of government institutions and private organizations for the purpose of tracking down mechanisms whose aim is to divert public opinion in political and other issues.



## For the first time: a unique collaboration between the College and Assuta Hospital in Ashdod

The collaboration allows students to experience the professional activity of the industrial engineering and management field, and later on will allow them to expand their research in the relevant topics

### Dr. Ofer Barkai, Industrial Engineering and Management Department

As part of its desire to contribute to society and become a part of it, SCE has decided to take part in facing the challenges of setting up Assuta Hospital in Ashdod.

The interface with the hospital began in the initial stages of its construction, with tours in which I took part as a member of a research forum in Ashdod. The collaboration started before the center was opened, between me – a final project coordinator at the Industrial Engineering and Management Department, and Hezi Rozenberg – a director of organization and methods and a member of the Assuta Hospital management.

Thanks to this collaboration, Hezi Rozenberg came to the College in 2017 to give a guest lecture, as part of the preparation course for the final project in the Industrial Engineering and Management Department at Ashdod Campus. Among other things, he presented the students with various topics for their final projects, and with hospital job offers.

In idea behind this activity was to have a collaboration that would allow the placement of students in a suitable final project, and later on the absorption of some of them into the profession with paid jobs.

As part of the collaboration, we find ourselves these days in the midst of six projects in different stages: three projects under my instruction and two more under a joint instruction of Dr. Hagai Ilani, the Head of the Industrial Engineering

and Management Department, and myself. Furthermore, as a result of the collaboration, several students from the department are already working at the hospital.

The projects being conducted these days deal with organizing delivery rooms, newborn rooms, an emergency room, operating rooms and a chain of supply for the hospital wards. Two of the projects are carried on by M.Sc. students, and the others are done by B.Sc. students.

The projects contribute both to the hospital and to the Industrial Engineering and Management Department, by deepening its research. They deal with the following issues:

1. Shortening the treatment process of women at childbirth in the obstetrics ward.
2. Optimizing and improving the operating rooms' utilization: examining bottlenecks inside operating rooms (improving the process within the operating room, mostly by allocating rooms to the departments and assigning each department's operations, in order to minimize unused rooms).
3. Optimizing the operating rooms: examining a method for shortening the length of the operating room queues (reducing queues by organizing the work processes, setting time standards for the different types of operations, and setting time standards for the preparation activities before the various operations).
4. Improving the quality of service given to patients by reducing their waiting time,

by improving work efficiency and by increasing the credibility of information systems in the Emergency Room (Emergency Medicine Department).

5. Examining and validating the Emergency Room (Emergency Medicine Department) model in the existing format at Assuta (a rare method in Israel - sorting the patients according to how they get to the Emergency Room: "lying down" or "walking". Except for Assuta, Sheba Medical Center is the only one in Israel using this method, although it is common in the U.S.).

6. The hospital's chain of supply – focusing on supplying perishable medical equipment and laundry.

The hospital began the operation of all the departments that had been planned on November 7, 2017, including the operation of the last department - Emergency Medicine Department (Emergency Room).

At this point we are already planning future collaborations between the Industrial Engineering and Management Department and Assuta.

In the coming years, we hope to expand the scope of our activity and collaboration, having realized that this is a strategic cooperation – for the College in general and for the Industrial Engineering and Management Department in particular. Expanding our activity will allow our students to increase their experience in the professional activity of industrial engineering and management, and to enter researches in the field.

## "We quickly connected"

Carol and Eric, M.Sc. students from Magdeburg University, participating in the European Union's student exchange program at SCE, are encouraging others to follow

Carol and Eric, M.Sc. process engineering students, arrived at SCE as part of the student exchange program. This program is part of the collaboration between the College and Magdeburg University in Germany, in the European Union's Erasmus+ program.

During the second semester, Carol and Eric took courses of the Chemical Engineering and Software Engineering Departments, an entrepreneurship course and even a tennis course for beginners. They performed their final project under the instruction of lecturers from the Chemical Engineering Department.

Eric: "We learned a lot of things we had never been exposed to before. The entrepreneurship course offered important and interesting topics, which we'll undoubtedly make use of in the future. We learned how to develop our ideas and to progress in a variety of aspects.

"In the beginning we struggled with

learning, because of the language, but very quickly we connected. We had nice students around us who helped us a lot. Our lab partners made sure we were integrated, and everywhere, including the cafeteria, we meet new people. Everybody's nice, want to help and host. We go out with students, we go to bars and we try to travel."

Carol: "I enjoy working at the lab and I learn many new things. An extra bonus – we've managed to really improve our English."

Carol and Eric live in the Old City, in a building that houses foreign students from various programs. They have already visited Tel-Aviv, Haifa, Rosh Hanikra, Acre and the Dead Sea. Carol says that her family and boyfriend came to visit, and they all rented a car and went on trips together.

Eric: "We both love Israel. It's beautiful and interesting and we're glad we chose it for our student exchange. We encourage others to follow us."





## Matters of the environment

Prof. Adi Wolfson, a researcher at SCE's Green Processes Center

**Recently, a variety of environmental issues have appeared in the headlines; here are some of them:**

### **Drought here and now**

The water crisis in Israel is of extreme gravity; it should be the main issue of every government meeting, news broadcast or small talk. That's because from one "storm" to another rainy event, Israel is drying up. The figures speak for themselves too: a fifth year of drought, the Sea of Galilee's level has reached its negative peak ever, and the shortage of water is the greatest we have known in the last hundred years. According to all the statements we have heard recently, we'll soon begin to feel this crisis ourselves: in the rise of fruits' and vegetables' prices due to the cut of water quotas to the farmers, in public gardens being dried up, and later on maybe even in the rise of water prices.

But the water shortage has an additional, environmental price, one that we are all going to pay twice for in the future. First, nature is crying for water. The severe shortage of rainwater, alongside an increased pumping of stream water, has caused a significant damage to ecological systems over the years: the vegetation that dries up, the dwindling animal population and the disappearance of humid habitats. All these systems are vitally important to the continuing existence of the living environment in nature, the biosphere, and also to the existence of human society.

The continuous water shortage has caused the State of Israel to develop a tremendous water desalination system, which provides over 50% of Israel's drinking water. According to national plans, the desalination rate will only increase. But desalinated seawater has

its environmental price, which is high energy consumption, which causes air pollution and greenhouse gas emissions, and pouring the concentrated salt solution back into the sea. Moreover, desalination has direct impacts on our health, from magnesium shortage in the water, which may increase the risk for heart diseases, to iodine shortage, which can harm pregnant women and babies. And the country, for the time being, is still examining the details.

### **Profiting from the traffic jam**

While you are stuck in the traffic jam, the workers in the Government Compound in Tel Aviv are going on strike, demanding extra wages for the time they have to spend while they are stuck in the traffic jam at the entrance and exit to the building parking lot, due to the light railway works. As if they didn't have a railway station across the street, or as if they didn't have numerous inner city and inter-city bus lines stopping at the station beneath their building. But what is most outrageous is that so far the country has been paying the workers an addition of work hours for the hours they spend in the traffic jam. What can I say? I wish we were all that lucky.

### **The Arrangements Law for the industry**

We stand in traffic jams, but the country doesn't stop at red light. Otherwise, it's not clear why the new Arrangements Law hides a clause that allows the country to expropriate the powers of licensing businesses from the local authorities when it comes to a business that is defined as a national infrastructure. If something in your memory rings a bell, like Haifa Chemicals, the ammonia tank and the promises made by Prime Minister Benjamin Netanyahu to regulate the matter by law, you are not mistaken.

The Business Licensing Law has a significant effect on all of us. A business license should guarantee that all the arrangements have been made for the proper operation of the business, in order to preserve public health and safety, alongside the inhabitants' safety and life quality. Therefore, the main concern of each and every one of us should be the lightness in which the country could "nationalize" plants, which will suddenly become national and security infrastructures, and this way remove their activities away from the public eye. And remember that those who will make the decisions instead of the local authorities and over our heads, are the same ones who told us that the ammonia tank was good and safe – and then changed their minds. Remember how they convinced us that ammonia was a basic consumption product, and without the tank our industry would collapse. Well, none of it was true after all.

### **Losing on the Mechir LaMishtaken (Buyers Price) program**

And if we talk about jams, let's talk about housing. We have recently learned that over 800 people gave up their eligibility to buy an apartment at the Mechir LaMishtaken project at Herzliya Galil Yam. Why give up on a benefit estimated at about 700 thousand shekels, and a dream apartment in the center? Because these people claim they found out that the apartments which were to be sold with a discount were poorly designed compared to the equivalent apartments, which were to be sold in the free market. The faulty design included, for example, only one air direction, or bathroom and shower without a window, and a large number of apartments on each floor. The buyers who canceled their deals claim that the

project is actually going to be an affordable housing complex in a prestigious envelope. And all this is happening even before the other buyers get to find out that the infrastructures are bad, the toilets are leaking and the traffic jams are endless.

### **Taking off from the Negev**

Heads of local authorities from the north and from the south have recently convened in Beer-Sheva in order to announce the establishment of a joint operation headquarters for the construction of a civilian airport, complementary to Ben Gurion Airport, in Nevatim. This week, the writer Meir Shalev joined the north and south inhabitants' joint struggle and explained in his picturesque language that the establishment of the complementary airport in the Jezreel Valley would harm the natural and human environment there, whereas establishing it next to the existing Nevatim Airbase would promote the development of the Negev.

But in Israel, as always, beyond the economic, social and environmental considerations, which all point to the advantages of the southern alternative, there are security considerations. And so, the position of the Transportation and Environment Ministries and that of the Negev and Galilee inhabitants is overlooked, and the National Council for Planning and Building is promoting the northern alternative, although it has agreed to promote initial planning in Nevatim too.

It's important to bear in mind that security and national resilience are not measured through military aspects alone, but also in social and environmental contexts. And anyway, if everyone is talking about developing the Negev and anticipating a constant population growth there, it's only right to build a civilian airport there.

## The 21<sup>st</sup>-century engineer

In the last decade the employment market has undergone some changes, and the industry is compelled to adapt itself to the advanced technological era. As the industry develops technologically and the employment world becomes more global, today's engineers are also required to adapt themselves and develop engineering skills combined with "soft" skills.

The 21st-century engineer is required to lead change and be creative, innovative and able to meet new challenges. Students who get to finish their degree need to be able to learn independently, work in a team, master foreign languages and manage their career in a global employment market.

Yafa Daniely, Head of the Center for Career Development at the Dean's office, says that the College strives to train its engineers for excellence and innovation, and adapts its curricula to the 21st century developing employment world.

**This raises the question: how can we develop the "soft" skills required to succeed at work in the developing employment world?**

According to Daniely, it is important to make your decisions based on real information about the possible career paths. It is also important to succeed in carrying out your decisions through a successful process of job seeking, which would allow you to find the right opportunities and to demonstrate your advantages to the employer at the crucial moment.

**Ask yourselves if you know the answers to these questions:**

- How do I develop a 21st-century engineering career?
  - How do I become wanted in the job market?
  - How do I get invited to interviews for the highest quality jobs?
  - How do I pass the interview in the best possible way?
  - How do I present myself best and go through an assessment center?
- The Center for Career Development at the Dean's office at SCE has taken upon itself to provide you with answers for questions relating to career development and appropriate integration into work as engineers.

As part of its services, the center offers the students, starting with the end of their second year at SCE, through their graduation and along their career, a variety of counseling, guidance and assistance services:

Training workshops for career development; individual counseling at writing their C.V.s; personal training and empowerment before a job interview; a career course which gives them credit points; preparation workshops before going through assessment centers; workshops for using social networks to look for a job; a job offers database; career spotlight meetings and an employment fair.

**To make a counseling appointment, please contact:**

- The Center for Career Development, the Dean's office, Beer-Sheva Campus – 972-8-6475750
- The Center for Career Development, the Dean's office, Ashdod Campus – 972-8-8519362



## Celebrating Earth Day

Earth Day was celebrated on the Beer Sheva campus by holding a second-hand product fair, inaugurating new recycling stands throughout the campus and delivering lectures on environmental issues

On Earth Day, which was celebrated around the world in April, SCE students enjoyed a second-hand product fair, initiated by the Green Campus group at Beer-Sheva Campus.

Three schools from neighborhood C in Beer-Sheva took part in the event as well. Their students had collected books, clothes, jewels and home products and sold them at the fair. All the profits from the event were given away as donations.

Furthermore, following the theme of recycling and reusing products, which was at the heart of the event, the new recycling stands which had been placed throughout the campus by the Green Campus members were inaugurated – colorful bins to separate between glass bottles, plastics bottles and cans.

Lecturers from the College gave lectures about environment protection and recycling. Dr. Oshra Saphier spoke about “nature’s health basket”, and Dr.

Dagan Bakun Mazor lectured about the temperature changes taking place on Earth.

The Earth Day celebration at the College was initiated by Shai Berkman and Semyon Antus, the Environment Protection Coordinators in the Green Campus project. “The College is undergoing an ecological revolution,” they said, “the world is tending towards recycling and reusing existent products, and the approach of the green group and the College is: reuse, repair, recycle. The idea is to find another use for every item before throwing it away.”

Shai and Semyon, fourth year students at the Civil Engineering and Chemical Engineering departments, pointed out that the recycling stands were a big and welcome step on behalf of the College for the sake of protecting the environment: “We invite our fellow students to use the new bins correctly, for the sake of the environment we live in and for a green future.”



## A campus garden

As part of the cooperation between SCE’s Green Campus group and the Earth’s Promise association, students will run a community organic garden on Beer-Sheva Campus, for the students’ benefit

A new Green Campus group was formed at the College a year ago, in order to lead an environmental change of perception and raise environmental issues on the students’ and faculty’s agenda. The group members work, among other things, to encourage green and sustainable engineering research and to hold elective courses in the overlapping fields of ecology and engineering.

In the course of the year the green group has worked in a variety of projects and events at the College. New recycling stands will soon be inaugurated throughout Beer-Sheva Campus, and a community organic garden will be set up and run by the group members.

“The community garden, with an area of 120 square meters, will offer a variety of vegetables and edible plants,” say the students Semyon Antus and Shai Berkman, the Environment Protection Coordinators in the Green Campus project. “We’ll run the garden in conjunction with the Earth’s Promise Association that promotes urban agriculture, and they will hold workshops for students who are interested.”

The Green Campus group aspires to bring in additional students, to think together about promoting the green activity and raising everyone’s awareness of environmental issues.



## Engineers for a better world – in practice

SCE has marked the Good Deeds Day this year by renovating the Kav LaChaim clubhouse for children on the autistic spectrum ■ Students and faculty members renovated, cleaned and designed, and made the building pleasant and inviting ■ A huge family happening took place at the campus

SCE has decided this year, for Good Deeds Day, to hold a joint initiative of students, faculty members and the workers’ committee. The College staff has heard about the shaky physical condition of the Kav LaChaim clubhouse at Nahal Beka neighborhood in Beer-Sheva, which is intended for children on the autistic spectrum. It turned out that the clubhouse was old and not properly equipped, its walls were peeling and graffiti paintings were “decorating” its outer walls.

The Students’ Association and the College faculty decided together about renovating the clubhouse. For a week, delegations of students and faculty members arrived at the clubhouse to paint, clean, repair and design the place, in order to make the clubhouse an inviting, fun, home-like place to be in. SCE people came equipped with paint



cans, brushes, drills, interior accessories etc.

During the day a huge family happening took place in the campus, with scientific activities, playing complexes, inflatable attractions etc. The clubhouse children were invited to the clubhouse and played with the students.

Edva Potaznik, Chairman of the Students’ Association, says: “The slogan

leading the College and its students is ‘Engineers for a better world’. For that reason, it was important for us to take part in a community social activity. We experienced tremendous volunteering of faculty, students and donors, including help from a lecturer at a home styling college. The clubhouse was in a very bad shape, and now it’s pleasant, familial and inviting; a place where children can have fun.”

## Not just engineering: students donate for a neighborhood resident

First year students at the Chemical Engineering Department volunteered for a neighborhood A resident towards Passover

A moment before Passover, a group of first year students from the Mechanical Engineering Department met H., a neighborhood A resident who often walks around the campus and collects plastic bottles for recycling. After talking to him, the students decided to help him properly celebrate Passover and so they joined in a fundraiser. Having collected ILS 800 from their friends and from some of their lecturers, they bought

food products for H. and for his wife and surprised them with an exciting gift for the holiday.

“The students in the department know H.; we see him a lot on campus,” said Eviatar Yehuda, the student who initiated the fundraising. “We talked to him before the holiday and asked him if he was missing anything. He’s a tradition observer, and he told us how important the holiday meal was for him. We decided to collect

money from students who were willing to donate. H. and his wife were very glad to receive the products for the holiday.”

“We wanted to give something to the community around us for the holiday,” summarized Eviatar, and added: “they teach us at the College to be ‘engineers for a better world’. If everyone does something small for others, we can make a difference, and the world will indeed become a better place.”



