

JCT Perspective

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JERUSALEM
COLLEGE OF
TECHNOLOGY
LEV ACADEMIC CENTER

HELPING TO CREATE A HEALTHIER WORLD

Jerusalem College of Technology – Lev Academic Center

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JCT – Lev Academic Center has always been branded as an academic institution known for producing graduates who infuse their ingenuity and outstanding work ethic into the high-tech sector. After all, “technology” is part of the college’s name.

Yet, today, we are just as proud of our exceptional students and programs in accounting, nursing, and other fields. The JCT bachelor’s of nursing (BSN) program accounts for 20 percent of all nursing students in Israel.

Our nursing department has 1,000 students—the same number as our computer science department. Based on these numbers, saying that JCT is a technology school is no more valid than calling it a nursing school. Is this a paradox? Does excellence in nursing align with JCT’s reputation as a technology leader?

In truth, the dream behind JCT’s founding in 1969 was a practical one. It envisioned engineers as the leaders of Israeli society due to the scope of what they could accomplish in the technological arena. But above all, this dream sought to provide practical solutions to real world problems by promoting academic excellence. JCT’s founders aspired to meet Israel’s pressing needs whatever they might be—in high-tech or any sector—by empowering its students with high-level training and a passion for being the best in whatever they do.

Five decades later, as we approach our 50th anniversary, JCT’s implementation of this mission means the college is rooted in technology, but not wedded to it. We are a leader in addressing crucial issues in Israeli society—whether it be the country’s shortage of high-voltage electrical engineers, or its shortage of nurses. When Israel has a high-priority need, we are there to address it.

That is precisely why this issue of Perspective touches on JCT’s diverse accomplishments in the health field, which might not be as well-known as our achievements in technology, but are arguably just as important.

At the same time, JCT has always stayed true to its standard of excellence in technology. In June, 18 men and women from our Cyber Elite program were among the 90 finalists in Israel’s National Cyber Challenge competition.

Ultimately, JCT’s core value is excellence, from cyber security to nursing and everything in between. Our students, alumni, staff, and faculty are fulfilling and even exceeding the college’s founding dream for the benefit of Israel and the world.

Please accept my best wishes for a happy and healthy New Year, in which you also will fulfill your greatest dreams.

Shana Tova,



Prof. Chaim Sukenik, President





Celebrating 50 years of JCT

As we turn the page on the Hebrew calendar year 5778, the year ahead will contain a major milestone for the Jerusalem College of Technology: its 50th anniversary.

JCT is better-positioned than ever to effect positive change in Israeli society and across the Jewish world. Here are some of our major accomplishments:

We create a more harmonious and inclusive Israel by providing high-level science and technology education—and ultimately, employment—to the haredi community, easing the national welfare burden and ensuring that all Israelis can reach their full potential regardless of their religious backgrounds.

We provide a unique combination of science and engineering education and advanced Judaic studies courses to women through the Tal Campus, for which we were recently awarded land in Emek Zion where we will build permanent facilities.

We are helping religious young adults from the Diaspora strike a much-sought-after balance between academic and Torah studies through our International Program in English.

We are launching Israel's first academic program in health informatics, with the help of the University of Toronto and Canadian Friends of JCT.

We generate progress for Ethiopian-Israelis through the Reuven Surkis Program for Students from The Ethiopian Community, which produces a 97-percent employment rate for its graduates.

One can only imagine what JCT will accomplish in the next 50 years. Rosh Hashanah 5779 is truly just the beginning of another groundbreaking half-century.

Wishing you and your family a Shana Tova!

Stuart Hershkowitz, Vice President

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JCT History and Prestige:
The Jerusalem College of Technology was founded in 1969 and is today one of Israel's major academic institutions, with over 4500 students on three campuses. It is fully accredited by Israel's Council of Higher Education and specializes in hi-tech engineering, computers, business and health sciences. More than 100 hi-tech companies have been established by JCT alumni and faculty.

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JCT graduates serve in the IDF both in the field and in laboratories of top research units. They face the issues of keeping Shabbat in many contexts and situations which are becoming more challenging as technology develops

Rav Yosef Zvi Rimon, JCT's Rosh Yeshiva, shared with us the following dilemma:

In the summer of 5774, **Gilad Shaar** HYD, **Eyal Yifrach** HYD, and **Naphtali Frenkel** HYD were kidnapped by Hamas terrorists. Eighteen days after the abduction, the bodies of the youths were found on a plot of land near Halhul.

Already in the first few hours, the security forces assumed, with near certainty, that the boys were no longer alive. Nevertheless, the army, the security forces, and civilians proceeded as if there was a chance that the boys were still alive. Both the search by the security forces and the prayers and acts of kindness that accompanied the attempts to bring the boys back home continued diligently.

After approximately two weeks of searching, the idea of scanning the area by aerial photographs, in an attempt to find signs of changes in the ground that could attest to the burial of the bodies, G-d forbid, was suggested. On Friday, the 29th of Sivan 5774, I was approached by the people of the Gush Etzion rescue unit, who asked me whether it was possible to continue such investigations during Shabbat. This involved working with computers in order to identify the points where changes had been noted during the last few weeks, and then doing a focused search of the places identified.

If the working assumption had been that the teams were searching for bodies, it may very well have been forbidden to continue the investigation during Shabbat. Indeed, one Rabbi ordered them not to continue their computer work on Shabbat. However, it was clear to me that they should continue the computer work on Shabbat and that is what I told them to do. Let's try to understand the basis of this decision.

In order to resolve this question, I had to consider several aspects of the *halachot* (Jewish laws) surrounding a life-saving activity of questionable efficacy. Many of these issues have been widely discussed, and therefore we will only examine those aspects that were critical to the decision in the case of the boys' kidnapping.

One of the most difficult things about such questions is to define what is considered *pikuach nefesh* - a matter of saving lives. On the one hand, *pikuach nefesh* overrides Shabbat, and even a life-saving activity of questionable effectiveness overrides Shabbat. This follows various rulings in the *Shulchan Aruch* (e.g. *Orach Chaim* 328,10), in accordance with the words

of the *Mishna* (*Yoma* 83,b), which states that "even life-saving measures of questionable efficacy override Shabbat."

On the other hand, it is clear that when the chances of success are extremely doubtful (*Responsa Chatam Sofer, Yoreh Deah*, 338), we are not allowed to desecrate Shabbat (*Responsa Rabbi Akiva Eiger, First Edition*, 50).

In fact, I allowed the rescue team to continue working on Shabbat for the following reasons:

- A. The possibility that at least one of the boys was alive was taken into consideration in as much as a life-saving activity overrides keeping Shabbat.
- B. It is permissible to desecrate Shabbat to avoid the real possibility of future *pikuach nefesh*, especially when it comes to public safety. Therefore, the fear of endangering the lives of other Israelis following the possible release of terrorists (in exchange for the bodies), is considered a life-saving activity that permits desecration of Shabbat.
- C. It is possible that it is also permissible to desecrate Shabbat even for the purpose of creating a sense of security (especially when it comes to the sense of security of the entire public).
- D. Most importantly, finding the bodies would stop the search for them in the houses of Arabs in Hebron and Gaza, which is certainly a real *pikuach nefesh*. Thus, the sooner the search ended, the fewer lives would be endangered!

The rescue team worked on Shabbat with the help of maps and computers in Gush Etzion and identified 150 places where it seemed that the bodies were likely to be found. On Sunday and Monday they conducted the actual search. The bodies of the holy boys were found in one of these places on Monday, 2nd of Tammuz. The work on Shabbat not only saved a day in finding the bodies, but the rescuers indicated that a delay of one more day might have prevented them from ever finding the bodies due to winds that were blowing in the area.

Gilad, Eyal and Naftali, sanctified Hashem's name during their lives and in such sanctity found their deaths. These precious boys were blessed with wonderful parents who have been able to strengthen the Jewish people and create a sense of unity and connection that has not been seen in decades. May the spirit of these youths give us a renewed spirit, a spirit of faith and love, a spirit of unity and the fear of G-d, and hasten our full redemption.



'Big Bang Theory' star Mayim Bialik headlines JCT's New York City Gala

Friends of JCT's New York City gala dinner in May featured star actress **Mayim Bialik** as keynote speaker. Over 400 people gathered at Lincoln Square Synagogue to support JCT as a key agent of change in Israel through its training of religious women in science and technology careers. Bialik—an observant Jew in Hollywood who plays neurobiologist Amy Farrah Fowler on "The Big Bang Theory" and is herself a neuroscientist—was perfectly cast for the role of keynote speaker at the gala.

"What is so incredible about what the Jerusalem College of Technology does, and why I'm so honored to be here, is that I want to see Israel succeed and compete, and I think there is so much misinformation about Israel and what it is and what it's not. Organizations like JCT represent that tension and complexity while really honoring so many of the values that many of us hold true no matter how we identify politically or religiously," Bialik said.

The Shield of David was awarded to **Golan Ben Oni**, chief information officer at IDT, while the evening also included a tribute by Friends of JCT's Chairman **Rori Cassirer** to the late **Dr. Rozalie Schachter**, a trailblazer for women in the field of technology and a former vice president at Herley Industries. Chairpersons of the event were **Helene and Robbie Rothenberg**.



From L-R: Prof. Chaim Sukenik, Stuart Hershkowitz, Helene Rothenberg, Mayim Bialik, Robbie Rothenberg, Sandy Colb, Rori Cassirer, Prof. Linda Allen

Canadian Friends of JCT spotlights innovative partnership in Health Informatics

In June the Canadian Friends of JCT held a gala dinner in Toronto at which the **Honorable Stephen Harper**, former Prime Minister of Canada, was the keynote speaker and recipient of an honorary degree. **Robert S. Reichmann**, received the JCT Entrepreneurship Award for his important role in making hi-tech accessible to Haredim in Israel. **The University of Toronto** was also honored for its partnership with JCT in establishing the Health Informatics program in Jerusalem. The dinner which was sold out was chaired by CFJCT Chairman **Larry Krauss**. The JCT-U of T partnership was facilitated by **Prof. Judith Shamian**, an icon in the nursing field, past president of the International Council of Nurses and a member of JCT's board of trustees. Tribute was paid to the late **Barry and Honey Sherman**, past recipient of the JCT Award of Merit, and to the late **David Anisman**, who played a critical role in supporting the College in Canada.



L-R: Robert S. Reichman, Simmy Zielieniec and Larry Krauss



Prof. Chaim Sukenik awarding an honorary doctorate to Hon. Stephen Harper

JCT alum wins Israel Defense Prize for role in detecting Hamas tunnels

Col. Yaniv Avitan, a graduate of JCT's electro-optics department, heads an IDF team which during the past two years located nine cross-border attack tunnels dug from Gaza into Israel



Col. Yaniv Avitan courtesy IDF Spokesman's office **Screenshot:**  Morning News with Niv Raskin

Col. Yaniv Avitan, a graduate of JCT's Electro-Optics Engineering Department, received the 2018 Israel Defense Prize from the Israeli Ministry of Defense for his role heading a team that works to detect the Hamas terror groups' cross-border attack tunnels.

This marks the second consecutive year and the fourth time in the past decade that a JCT graduate has received this prestigious award. Avitan is head of the Collection and Assault Unit of the Technological Division of the Ground Forces of the Israel Defense Forces (IDF). His team developed "The Brain" which is a nickname for the laboratory they established in 2016 and in the last two years has located nine Hamas underground tunnels that were dug from the Gaza Strip into Israeli territory. The team includes experts from the IDF, the Ministry of Defense, academic institutions, and the defense industry.

As modern electro-optics applications are increasingly implemented in electronics, modern communications, medicine, data processing, energy, and especially the security field, JCT's electro-optics department prepares professionals for R&D work by providing them with a strong foundation in applied physics, electronics, and computers. Graduates of the electro-optics program master the planning of optical systems and instruments, lasers and other light sources, photoelectric light detectors, electro-optic light modulation, holography, devices for television photography as well as night vision devices, and computer assisted lens design.

The threat of a Hamas cross-border tunnel network was particularly prominent during Israel's 2014 summer war in Gaza. The IDF destroyed more than 30 of the so-called "terror tunnels" during that conflict, but the military continues to discover and dismantle the tunnels today, several years after Operation Protective Edge.

Avitan, aged 42, grew up in Netivot and lives in Sderot, both situated in southern Israel near the Gaza border—meaning the tunnel threat and other forms of terrorism have long been a reality of his daily life. He has researched the Hamas tunnels since 2013.

"We developed an algorithm into which data was fed, combined with assessments of the security situation and decisions about where to drill, where to dig, where to attack, and what to handle," says Avitan. "The breakthrough was not only technological, but also in the way people worked - technology professionals left their laboratories and went out in the field, in complete contrast to the norms of their military service. Various defense industries joined the Lab. There were great challenges, but everyone went full steam ahead. We are pretty confident in the method. It speaks for itself when it comes to locating tunnels."

Avitan calls his team's tunnel-detection breakthrough "the highlight of my career." When asked why he chose to stay in the army when using his skills to develop a start-up could potentially make him millions, Avitan simply stated that the fields outside of the army "can't provide the sense of meaning that IDF service offers."

"The most dramatic moment was the first time the system proved itself," he recalls. "You hit the tunnel and it's very exciting. As a resident of the area, I understand very well what this means for civilians. The tunnel that we most recently detected (about a month ago) threatened the lives of IDF soldiers and residents of the Gaza vicinity. It was discovered a short distance from where my family lives."



CYBER ELITE

JCT has outsized presence at Israel's Cyber Challenge competition



Eighteen students who are part of JCT's Cyber Elite program were among the 90 finalists in the Cyber Challenge competition, held at Tel Aviv University during Israel's national Cyber Week in June.

Cyber Elite opens new doors for haredi and national-religious Israelis, who previously had virtually no access to cyber careers because the primary path to that industry in Israel is participation in cyber units within the military. Cyber Elite provides intensive cyber training to outstanding graduates of JCT's degrees in software engineering and computer science, while simultaneously placing them in cyber departments of multinational, aerospace, and defense companies, as well as in cyber startups.

The program is part of JCT's broader mission to empower religious Israelis through science and technology education, as 4,500 haredi and religious students study at the college's Lev Academic Center. JCT trains 18 percent of Israel's women engineers and the same portion of the country's computer science female students. It comes as no surprise, therefore, that JCT students represented one-fifth of all competitors in the final stage of this week's Cyber Challenge. The 18 Cyber Elite participants who reached the six-hour final round were chosen from among 400 candidates from across Israel who took part in an online preliminary screening stage in May. Only three women qualified for the final stage—all of them from Cyber Elite.

Yehiel Levin, a 29-year-old haredi father of two who studied

computer science at the Lev Academic Center, was among the Cyber Challenge finalists. He works as a student in the R&D department of a company that monitors and identifies computer network threats, and after completing Cyber Elite, he is expected to continue working for that company in a full-time position.

"I would not have gotten this job without Cyber Elite, no matter how talented or professional I was," Levin said. "The skills we acquired and the connections we made with the cyber industry this year enabled me to reach the point where I am today".

Cyber Elite is an 11-month-long pilot program for 31 students—16 men and 15 women—that JCT hopes to continue and grow. The initiative has given Israeli companies access to previously untapped talent in the religious community.

"The program provides an opportunity for secular business leaders to get acquainted with the religious and haredi sectors," said Levin. "There is also a huge change taking place in the haredi public. When I went to school, it was not easy to explain to people why I was going to pursue such a career. But over the years, I have seen a greater understanding in the haredi community. Even when there is no agreement, there is much more acceptance of my path as a professional."

Cyber Elite is a partnership between JCT's Lev Academic Center, the Rashi Foundation's Cyber Education Center, and the National Cyber Directorate of the Israeli Prime Minister's Office. The program was developed in collaboration with senior executives in Israel's cyber industry, and its courses combine theory with hands-on experience, in accordance with the needs of the defense and civil industries.

Moshe Gowers, 32, began studying secular subjects a decade ago after previously only learning in a yeshiva environment. A computer science student at the Lev Academic Center, he began working as a developer and programmer until joining Cyber Elite, where he studied cyber security and hacking.

"In the Cyber Challenge competition in particular, and in cybersecurity in general, you have to think outside the box," Gores said.

"During the contest, we were able to cope with challenges we experienced throughout the year as part of Cyber Elite, to solve things and to deal with new tasks," added Levin. "In cybersecurity, there will always be something new to learn and try."

From Seamstress to Cyber

It was not too long ago that Tammy, 25, a Chassidic woman, found herself sewing hundreds of garments per day at a large factory in Bnei Brak. Today, she works at Intel, where she examines computer code to determine if cyber-attacks can breach it.



Tammy's career transformation is the result of JCT's Cyber Elite program, which has opened the door for individuals like Tammy whose paths to the cyber industry were previously closed. Among the women participating in the 11-month-long program, three have been placed in the security side of aerospace and defense companies, three in cyber departments of Fortune 50 companies, three in multinational cyber companies, two in the commercial side of aerospace and defense, two in cyber startups, one in the cyber department of one of the world's top three accounting firms, and one in an automotive cyber company. All of these women are religious and more than half are from haredi backgrounds.

Tammy recalls that her seemingly endless workload as a seamstress was "not challenging enough," and she quickly lost her passion for sewing. She decided this was not going to be the rest of her life, nor define her.

"You're just sitting there with your head down working all day with the music on," she says. "It was not for me, I needed more. I started thinking at that point, 'What else can I do?' I knew I had to study something different—something where I needed to really think and use my brain. I knew I was smart and if I didn't challenge myself, I would go crazy. I didn't want to be bored anymore. I wanted to come home in the

evening from work and feel like I accomplished something and thought critically."

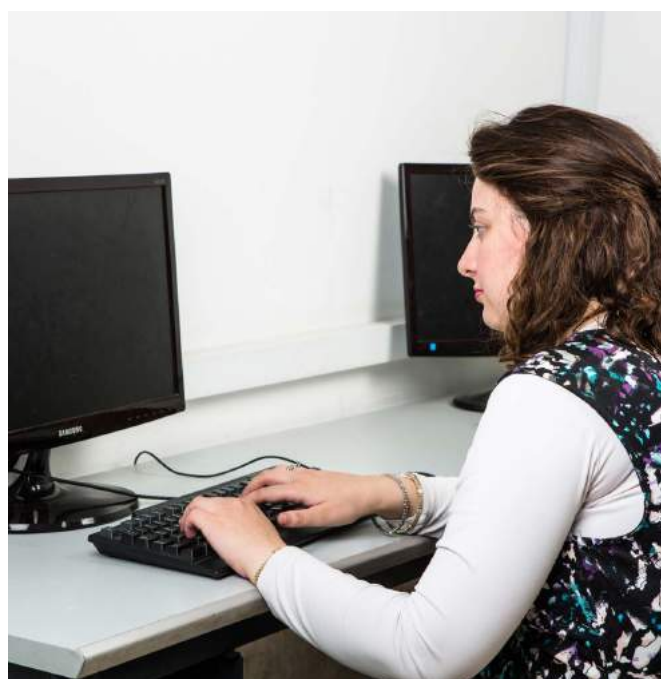
After earning a nearly perfect score on an Israeli standardized test, Tammy began discovering her new calling in computer science—and that's when she found JCT.

"I was looking for a place where I could learn computers and also stay in my community," she says. "JCT has a terrific computer science degree and a great reputation. When I visited and saw how well I fit into the school's environment, it was a done deal."

While Tammy was studying at JCT, she learned about the Cyber Elite program and had a vision for herself: she would one day use her talent to help defend against cyber attacks. She knew that she would savor the challenge.

Tammy went through Cyber Elite's rigorous application process, including four stages of intensive screening that lasted several months: a GPA evaluation, a written application, group dynamics sessions, and a high-level technical interview. Equipped with her BSc in computer science from JCT, along with currently studying intensively for two full days per week in Cyber Elite, she has worked at Intel for almost a year, and hopes to remain at the company long-term in a cyber security position.

"My family is very proud of me, as are my close friends," she says. "Many in my community don't know what cyber defense or cyber security is, so I usually just tell people I study computers and for the most part people are supportive."



AWARDS



The Cyber Elite program gave Tammy confidence in her abilities and opened her eyes to a profession that she would not have otherwise discovered. "Cyber Elite has put me in a great position," she says. "There is a very supportive environment at JCT. I was able to stay within my religious community, but also study the things I want to study."

This initiative is just one example of how much JCT believes in women like Tammy, investing in their abilities and enabling them to not only enter previously male-dominated fields, but to reach the upper echelons of those professions.

Tammy, meanwhile, is already dreaming about the next generation of religious career women.

"I'll certainly give my daughter her own choice on what to do and what to study, but I'd like her to do something 'different,' something that she is good at and something that challenges her day in and day out," she says. "I'll give her every opportunity in the world."

JCT's Dr. Dan Buchnik voted among top lecturers in Israel

In a vote among 3,500 students from all institutions of higher education in Israel, **Dr. Dan Buchnik**, a lecturer at JCT, was selected as one of the 12 most "inspiring lecturers" nationwide. The vote was initiated by the students themselves, who presented the lecturers with awards during an annual conference held by the National Union of Israeli Students in association with Mifal HaPais (Israel's national lottery).

Buchnik lectures in computer science at JCT and Bar-Ilan. He received his PhD from Pacific Southern University and specializes in information security, information technology and system security. He previously served as CEO of Yeshivat Noam and Vice CEO of Science and Technology at AMIT.

"Dan Buchnik inspired me. Thanks to his amazing personality and caring towards each student, he delivered the material in the best possible way. He is worthy of this award because there truly are no other lecturers that match him," said one of the students who participated in the voting. "Dr. Buchnik taught my first course at JCT and managed to make me believe that he truly wants me to succeed," added another student.

JCT students develop life-saving technology

At the Digital Summit Conference held recently by the Information Technology Unit of the Ministry of Economy, JCT students **Sari Tayar**, **Aviya Azmon** and **Chen Danino** won third place in a competition to design innovative technology for saving lives after a stroke.

Dozens of projects from across the country were presented in the competition. The JCT students' project was supervised by **Dr. Ariella Richardson**. The committee evaluating the projects stated that the system developed by JCT contestants "improves the level of diagnosis and treatment by using highly advanced technologies, including computerized vision, artificial intelligence, and assessment using medical history."

Strokes are among the most common causes of disability and death worldwide. A stroke can be treated with a high chance of success if treatment is provided within several hours of the occurrence. However, despite wide publication of content on the subject and increasing public awareness, people still find it difficult to recognize a stroke in real-time.

The numbers speak for themselves

JCT's CPA graduates maintain the college's standing as the leading academic institution in accounting education, achieving the highest scores on the final CPA exams alongside IDC Herzliya. JCT's passing rate of 84% is far ahead of other colleges, and far above the national passing rate of 60%. "These are quality students, who come to succeed – and certainly do so," says Eti Stern, Head of Tal Campus, "The leading firms know that JCT graduates are excellent and now JCT's name carries the same clout as any university in Israel."

As Jewish community celebrates a 'healthy New Year,' JCT helps create a healthier world

Around the time of Rosh Hashanah, it is common to give and receive wishes for a "happy and healthy New Year." But health is not just a personal aspiration—it is a biblical directive. *Devarim 4:15* commands us, "*Ushmartem meod lenafshoteichem*," representing the Torah's imperative that we take care of ourselves by maintaining strong physical health.

JCT believes the commitment to health is a collective responsibility for the Israeli and Jewish people, and therefore, the institution highly prioritizes upholding a standard of excellence as well as generating innovation in health-related academia and research. Given that future leaders across professions are trained at the college level, higher education is a laboratory where numerous breakthroughs in the health field are born—and JCT is seizing that opportunity.

Israel's top-ranked nursing program

The 900 students in JCT's BSN (bachelor's of nursing) program account for just under 20 percent of all nursing students in Israel. The college's Nursing Department was recently awarded the Ministry of Health's National Prize for Excellence, ranking first among 24 departments nationwide in all measured criteria.

JCT's nursing graduates have a pass rate of virtually 100 percent every year on national accreditation exams—the highest scores in Israel. There are currently over 1,000

students studying towards degrees in nursing at JCT. Among them are 460 Haredim, 180 New Immigrants, and 34 Ethiopian-Israelis. The nursing faculty at JCT has existed at the college for 11 years, producing more than 500 graduates after the program was founded with 39 students.

"There is a tremendous nursing shortage in Israel, and we contribute about 150 nurses annually to the health care system—eventually that figure will reach 250 every year," says **Prof. Chaya Greenberger**, dean of the Faculty of Life & Health Sciences at JCT. "Our nursing graduates work in all of the country's major hospitals, including in mental health and intensive care. They are making a mark."

Greenberger believes JCT's religious students show a high level of interest in the nursing field "because they see the value of giving. That's not to say the secular community doesn't. But it seems to be uppermost in the minds of our religious students and applicants, to be able to give and contribute, and make a decent living at the same time."

Liya Lewis, a JCT nursing student who made aliyah from Canada, says she and her fellow students "feel a huge sense of responsibility, as there is a lack of nurses in the health care system in Israel, to go out and make a change."

"The education at JCT is not just knowledge for practical things," she says. "It is also building character traits to give care in the most caring way, with personal attention to patients who need it most—to be sensitive to different cultures and different needs, as Israel has a diversity of people from all over the world. We are very honored to be in this program and to walk in the footsteps of great nurses before us."

The unique offerings of JCT's Nursing Department include a geriatric nurse practitioner's certification course provided in partnership with Herzog Hospital and with the support of the **Samson family**, an MSN (master's of science of nursing) program specializing in geriatrics that is dedicated by the **Glickman family**, a paramedic certification program for nursing students that is supported by the **Schimmel family**, and a nursing program for men with over 100 students—26 of whom are Haredi and six of whom are Ethiopian-Israelis—in its third year.

Dr. Laurie Glick, head of JCT's Nursing Department, says the department's underlying principle is the importance of individual interaction with an empathy towards its students, many of whom have multifaceted responsibilities in life.



"They have to juggle not only the demands of academic excellency, but also performing high-level clinical skills, as well as caring for their young children and supporting their families," Glick says. "The academic faculty and staff is committed to preparing our students for the spiritual, physical, and emotional challenges that they will encounter as nursing professionals with their patients in the hospital and community environments."

"JCT is gratified", Glick adds, "that the positive experience of our Nursing Department has prompted some of our students to return to teach the new generation."

Pioneering program in health informatics

The latest interdisciplinary innovation created within JCT's Nursing Department is Israel's first certified program in the growing field of health informatics, which focuses on managing and analyzing data to support the best clinical decisions and treatment for patients. Health informatics utilizes the study and application of clinical, information, and computer sciences to design and deploy effective technologies that support the delivery of health care services and improve information management. At JCT, the health informatics program consists of 28 sessions and is open to registered nurses with a bachelor's degree.

JCT's health informatics program was developed with the support of **the Canadian Friends of JCT**, the assistance of the **University of Toronto's (U of T) Institute of Health Policy, Management and Evaluation** and the guidance of **Dr. Judith Shamian**, the past president of the International Council of Nurses and member of JCT's Board of Directors.

"When I realized that Israel doesn't have a health informatics program, which is the bedrock for the best use of technology, information and clinical practice for quality care, I approached both JCT and U of T to determine their interest in having such a program," says Shamian. "Both were very interested and committed, which led to the creation of JCT's outstanding certificate program."

Launched towards the end of 2017, the certificate program's first cohort completed its studies this April, and Israel's Council for Higher Education proceeded to approve JCT's Master of Health Informatics degree.

"I am delighted that JCT was approved to offer the only health informatics master's degree of its kind in Israel," Shamian says. "This groundbreaking program will empower a

new generation of medical professionals with indispensable technological expertise."

"Nurses and health professionals need to know information technology," echoes Prof. Greenberger. "Quality of care also depends on some other factors, but today's health facilities are based in a technological environment. If you can't work with technology, there is a whole piece that's missing that will impinge upon the quality of care. This is where health informatics come in. It provides an additional dimension in health care that is becoming so, so critical. It isn't ethical to ignore it anymore, because the field has such vast potential."

Regarding JCT's cooperation with the U of T, Greenberger says, "We felt that it was very important to us, doing something so totally new, to find a university able and willing to share knowledge and experience in building a program in health informatics. We were very fortunate that U of T was so forthcoming with its expertise."

Hackathons produce health innovations



JCT is a health innovator beyond the classroom—through organizing unique student events such as hackathons (technology marathons).

In June, JCT hosted the college's first hackathon for women on the Tal Campus. Students from engineering, business, and nursing programs raced against time to solve challenges posed by leading technology companies such as Intel, IBM, and Rafael Advanced Defense Systems, as well as socially minded start-ups and non-profits.

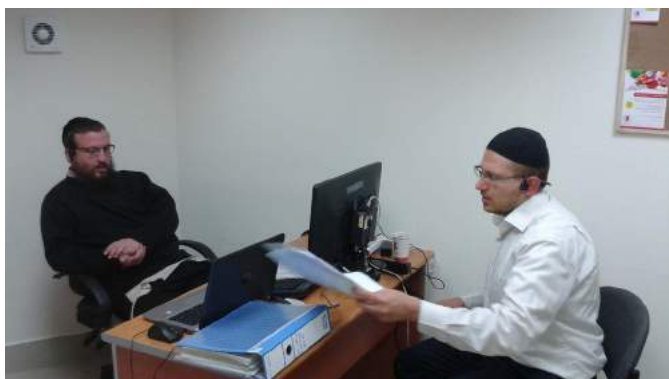
JCT initially expected 40-60 women to sign up for the hackathon, but registration needed to be closed a day early after reaching 120. Two of the hackathon's three winning teams, developed products with health applications—an electronic bracelet to help with triage in multi-casualty

incidents, and escape room enabling blind and seeing visitors to participate as equals by using computer vision techniques and music.

Additionally, for the second consecutive year, JCT's LevTech Entrepreneurship Center held a men's hackathon during Hanukkah in which 86 students competed continuously for 48 hours. The **MedInsole** team won first place by responding to a challenge posed by **Intel** and **ALYN**. The group developed a smart insole that collects and analyzes information on how patients walk. The information the team collected will help adapt medical care and devices to best suit patients' needs. For **Arazim**, a tablet-based game was developed for the visually-impaired, earned second place.

Giving back to the community

Community involvement is another hallmark of the health landscape at JCT.



Chaim Kaplan with a client at the Right's Center

Nursing student **Chaim Yehuda Kaplan**, a volunteer in the college's "Lev BaKehila" initiative, was selected by the Council for Higher Education to receive the Excellence Award for Community Involvement for the 2016-17 academic year. The prestigious award, which comes with a cash prize of NIS 10,000, was given to 10 students from institutions of higher education in Israel who demonstrated exceptional achievements in their social and communal activities.

Chaim, born in Russia, is a 41-year-old father of five who lives in Beit Shemesh. He began studying in the Department of Nursing at JCT after years of working in Jewish communities in Russia and Germany. Chaim volunteered in two programs—JCT's Lev BaKehila as well as "Siyach Sod," a Haredi organization in the field of nursing care. He was

among the founding students of Lev BaKehila's new Rights Center, which was established for people with disabilities in the Haredi sector.

In the Rights Center, Chaim addressed the most complicated cases in which authorities violated the rights of applicants. He did so with care and understanding, by delving into the details of the case, the relevant laws and procedures, and consulting professionals in the field. One example of Chaim's important work is the case of a teenager with Down syndrome who had no suitable Haredi educational framework for five years. Following the joint efforts of Chaim and the teenager's mother in communicating about the issue with Israel's Ministry of Health, the son was integrated into an educational framework suited to his needs.

Possible new solution for diabetes among major research advancements

JCT researchers are in the midst of various advanced-stage and early-stage health projects and academic collaborations, including **Prof. Uziel Sandler** and **Dr. Yoram Devary**, who are developing an innovative and revolutionary solution for diabetics.

The current treatment for many diabetics, injecting insulin into the body, does not provide a satisfactory solution for all patients. APC1, the new medication pioneered by Sandler and Devary, allows sugar to be transferred through the body more effectively, making it easier for the body to produce insulin without assistance. The major benefit of this medication is that it doesn't require an insulin injection, and encourages the body to produce the hormone on its own.

The development of APC1 began three years ago and has shown positive results in animal testing. Within a few



months, after proving its effectiveness and harmlessness, human trials will begin, and based upon their success, the medication will be presented to the FDA for approval.

Other advanced-stage projects at JCT include ISK, a new treatment for cancer that is also a collaboration between Sandler and Devary; an invisible bone-conduction hearing aid developed by **Alexander Rosin**; **Prof. Meir Nitzan's** accurate systolic blood pressure measurement based on PPG signals, his non-invasive assessment of oxygen saturation in newborns, and his analysis of photoplethysmographic waveform characteristics of newborns with coarctation of the aorta; and **Prof. Itzhak Leichter's** novel approach for diagnosing osteoporosis by processing proximal femur radiographs, his diagnosing of partial obstruction of the upper urinary tract through quantitative assessment of urine outflow, and his automated quantitative assessment of breast tissue composition for evaluating the risk of malignant breast tumors.

Early-stage projects supported by internal grants include **Marcelo David Martin's** non-invasive assessment of intra-abdominal pressure in critical patients, **Dr. Rachel Levin's** examination of roles of miRNAs in parathyroid embryogenesis, **Dr. Eli Rochlin's** study of antimicrobial peptide-sphingolipid conjugates, and **Dr. Shvivia Steinberg's** exploration of the applications of omega-3 fatty acids for fertility in women.

Projects supported by external grants include **Dr. Ariela Richardson's** study of a functional cognitive application for evaluating people with mild cognitive impairment in Parkinson's disease (a joint project with Hebrew University of Jerusalem), and **Prof. Avi Rosenfeld's** development of a low-cost screening tool to replace endoscopy in patients with persistent heartburn.

Short-term projects and academic collaborations include Prof. Meir Nitzan's exploration of the effect of lingual gauze swab placement on pulse oximeter readings in anaesthetised dogs and cats, **Dr. Yehoshua Socol's** research on the lifespan of dogs subjected to low-dose rates of ionizing radiation, Socol's prospects for novel low-dose radiation treatments, and **Dr. Gidi Gradwohl's** EGG analysis during sleep and wakefulness.

From 5778 to 5779

Through its excellence in nursing, pioneering program in health informatics, hackathons, and cutting-edge research,

JCT is a trailblazer in health education and technological innovation. While the Jewish community strives for a "happy and health new year" as the Hebrew calendar shifts from 5778 to 5779, JCT is certainly pro-active in having the "healthy" part covered.

Shana Tova!

Rabbi Yosef Zvi Rimon wins Katz Prize

Rabbi Yosef Zvi Rimon, JCT's Rosh Hayeshiva was recently awarded the prestigious Katz Prize at a special ceremony in Jerusalem, the Katz Prize, worth \$25,000, was established in 1975 by **Marcos and Adina Katz** in memory of Marcos' mother, Adela Katz. The Katz Prize is awarded in recognition of individuals and projects that deal with the implementation of Jewish Law in modern-day life.

The Katz Prize was awarded in recognition of the areas in which Rabbi Rimon is particularly involved that are directly related to the revival of Jewish sovereignty in the Land of Israel, and are characterized by the attempt to shape Torah life in the challenging modern reality. These include guidelines for Torah observant soldiers serving in the army, detailed instructions to farmers on matters of Shmitta, and his standing at the head of the Beit Midrash at JCT which seeks to produce Torah observant scientists who are trailblazers in the fields of science and Torah.

The award citation noted that Rav Rimon's Torah works are unique in their orderly and articulate presentation, which lays out to students the entire edifice of halachic principles derived from the scriptures, Oral Law, Rishonim and Achronim and its application to the development of new technology. The citation continues, "The mishna in Avot, Chapter 3 mishna 9, relates: One whose deeds are greater than his wisdom, his wisdom will endure. These words ably describe Rabbi Rimon in his community work and his diligent learning and dissemination of Torah to students and rabbis. His numerous activities are unique in their rare blend of a Torah personality who is well versed in his learning, a man of action who functions in our complex reality, and a person capable of bringing a potential to fruition. These two strengths come to the fore in his personality and his widespread influence on the public."

Rav Rimon also teaches in the Herzog College and the Migdal Oz Midrasha, serves as a synagogue rabbi in Alon Shvut and founded the Job Katif project for the employment of former residents of Gush Katif.

Iowa Governor Visits JCT



Stuart Hershkowitz, Gov. Kim Reynolds, Prof. Chaim Sukenik

A delegation headed by **Iowa Governor Kim Reynolds** recently visited JCT and met with President Prof. Chaim Sukenik and Vice President Stuart Hershkowitz. During the visit, Reynolds and delegation members also met with JCT students as well as a graduate who is currently in the process of establishing a start-up, and who has already raised millions of shekels from investors across the globe. Sukenik said, "We thank the governor and members of the delegation for their visit, and are honored to be able to present the religious sector in Israel to the world, showing that Jewish belief and advanced science go hand in hand."

Prestigious international computer algebra conference hosted by JCT

More than 100 leading mathematicians, physicists and researchers from across the globe came to JCT to attend the 23rd annual Applications of Computer Algebra (ACA) Conference. This was the first year that the prestigious international conference was held in Israel, following last year's selection of JCT's President Emeritus and Chair for Research in Torah, Mathematics and Education, Prof. Noah Dana Picard, as this year's host. Conference participants hailed from 20 countries, including the U.K., U.S., Japan, Germany, Austria, France, Poland, and others. Also present at the



conference were ACA founder Prof. Michael Wester, Minister of Science and Technology Ofir Akunis and Director General of the Ministry of Science and Technology Peretz Vazan.

This year's conference was dedicated to the late Jonathan Michael Borwein, a renowned mathematician who passed away last year. A number of lectures focused on his groundbreaking work. The conference consisted of six plenaries, 16 breakout sessions and 130 lectures on advancements at the highest levels of research and development in symbolic computation, such as abstract algebra, graph theory, algorithm development and their implementation into symbolic and scientific computation software. Applications were presented in various scientific fields, including astronomy, space and satellites, quantum mechanics, physics, medicine, image processing and more. Another major focus of the conference was mathematics and computer education. This year, for the first time, a joint session was held with a conference in Austria via satellite.

Delegation from China visits JCT

A delegation from China visited JCT recently in order to evaluate research collaboration opportunities. Members of the group were astounded by the wide array of studies conducted at JCT and said that they will explore the possibility of allocating funds towards research in Israel. JCT President Prof. Chaim Sukenik said, "We are witnessing the realization of the prophecy that Jerusalem will become a hearth of Torah, morals and technology that will light the way for the entire world."

Other high-profile visitors to JCT this past year included MK **Shuli Mualem**, Deputy Mayor of Jerusalem **Hagit Moshe**, Jerusalem mayoral candidate **Moshe Leon**, Minister of Agriculture **Uri Ariel**, and Deputy Minister of Defense **Rabbi Eli Ben-Dahan**.



Deputy Minister of Defense Eli Ben-Dahan addressing students in the Nahal Haredi program

VISITS AND EVENTS

Halachic–Medical Conference: Fasting on Yom Kippur with Medical Conditions

JCT held a conference on the Yom Kippur fast from a halachic-medical perspective organized by **Dr. Yitzchak Dresner**. The day-long event dealt with issues such as fasting for octogenarians, during pregnancy and fertility treatments and for those suffering from kidney disease and diabetes. Doctors from all sectors, community rabbis and halachic authorities attended the conference to enrich their own knowledge and share their perspectives. **Dr. Bishara Bisharat** presented on what can be learned about fasting on Yom Kippur from Islam's Ramadan fast.

Other unique conferences held this year at JCT included: Economics and Halacha, the Annual Conference for *Mitzvot Hatluyot Baaretz* (mitzvahs that are only carried out in Israel), the Jerusalem Conference for Research in Education in Mathematics, a lecture in preparation for Pesach and a conference about "Holiness and Worship in the Generation of the Internet."

North America science contest winners visit JCT, tour Israel

JCT, in collaboration with the **Walder Science Center** in Chicago, offers 11th and 12th grade high school students in Jewish schools nationwide the opportunity to compete in the annual Jerusalem Science Contest (JSC).

Each year, students participate in a six-month-long program, studying a scientific subject and its application in the real world. Participants hear lectures, take exams and research real issues while accumulating points building their ranks within the contest. In addition, Judaic issues relating to science being studied are discussed, debated and presented at the annual culmination ceremony in March.

This year, JSC contestants delved into nanoscience and technology. Among 40 participants, the seven who achieved the highest rankings were awarded a whirlwind eight-day tour of Israel in May, visiting JCT and other educational institutions and exploring the beauty and intrigue of Israel.

The highest-ranking student, **Rachel Berenshteyn** of Brooklyn, received a four-year tuition scholarship to JCT. The other winners who joined Rachel on the trip to Israel were Julia Polster (Chicago - 2nd prize), Pearl Clayman and Gavriel Asher Reiffman (Denver), Benjamin Meiner (Highland Park, N.J.), Eli Hawk and Yehudah Goldblatt (Woodmere, N.Y.).

Rabbi Heschel Weiner, director of the Walder Science Center, is proud that JCT and WSC partner in this endeavor. Says Rabbi Weiner, "JCT represents Walder Science Center's vision of what ought to be the aspirations of modern Jewry: dedication to Torah, leadership in cutting edge science and technology, and the State of Israel's growth in world class education. President Sukenik and JCT exemplify forward acting science from a Jewish perspective."

Last year's prize winner, **Jonah Lawrence** will be coming this fall to JCT to study computer science in the program for English speakers.

CFI Trade Delegation



A delegation from the U.K.'s Conservative Friends of Israel visited JCT as part of a trade delegation to Israel. The group was comprised of several Members of Parliament including **Mark Garnier**, the former parliamentary undersecretary of state at the Department for International Trade, and MP **Mark Harper**, who has served as chief whip and parliamentary secretary to the Treasury.

The visitors met employers from Intel, Mobileye and other high-tech companies who came to recruit students at JCT's annual job fair. They heard about the significant shortage of engineers in Israel and the important role JCT plays in training graduates for that sector.

The British dignitaries were particularly interested to learn how JCT is effectively mobilizing a cross-section of Israeli society who otherwise might not be exposed to high-level education and pathways to enter to the workforce. The MPs are keen to explore the possibility of setting up similar programs in the U.K.

The JCT LevTech Entrepreneurship Center, launched last October, provides students with the tools and opportunities to venture into new and exciting areas, create products from A-Z, and become leaders in their fields. Through LevTech, students receive access to both business and technology mentoring as they create products through a pre-accelerator program (LevTech LAB), guidance as they prepare for and compete in hackathons (technology marathons), extra-curricular programs teaching tech skills even to those studying towards non-tech degrees, and events encouraging creative thinking in the business and high-tech spheres. The entrepreneurship program places a special emphasis on recruiting women, as religious women have traditionally not been a part of Israel's high-tech ecosystem.

The entrepreneurship program consists of:

The LevTech LAB Pre-Accelerator: A semester-long program providing those with innovative ideas with the opportunities and resources to develop their ventures through three-hour weekly classes and independent work. Students receive access to both business and tech mentoring as they create products. 17 women and 35 men participated in two cohorts this year, which was an excellent start for the pilot phase of the program.

"Participating in LevTech was an excellent platform for me for exposure to the world of entrepreneurship and learning practical tools to develop as an entrepreneur."

Tal Yehuda, student in electrical and electronic engineering



Hackathon Preparation and Participation: The high-tech industry is increasingly turning to hackathons to identify potential future employees. Specialized preparation for hackathons teaches creative thinking and provides exposure to multinational companies, start-ups and venture capitalists. Such exposure is especially important for the Orthodox and Haredi communities, which often lack the requisite contacts in such spheres.

Hanukkah Hackathon

JCT's LevTech Entrepreneurship Center held a hackathon over Hanukkah for the second consecutive year, in which dozens of students competed continuously for 48 hours, creating technological solutions for challenges facing

companies and organizations including **Rafael, Arazim, Mobile, ALYN, PAGI Bank, Shalva, GOOL, IBM, CISCO, Intel**, and more. The judges included: **Amit Zilberstein (HUstart Accelerator), Zaki Djemal (fresh.fund), Nitzan Adler (Siftech/fresh.fund) and Eldad Postan (OurCrowd)**.

Seventeen groups competed in the hackathon. The MedInsole team won first place by fulfilling a challenge posed by Intel and ALYN. The group – Dan Lahat Yehonatan Fatau, Eran Ochayun, Moshe Maman, and Yakir Hadad – developed a smart insole that collects and analyzes information on how patients walk. The information the team collected will help adapt medical care and devices to best suit patients' needs.

Additional developments included Arazim – a tablet-based game for the visually-impaired (2nd place); MoodOut – a tool for identifying cattle rustlers via laser and infra-red light (3rd place); Magic Chess – an algorithm that enables chess boards to be voice-operated; and Air Guard – an algorithm for security cameras that determines whether an object nearing an area is a potential threat.

Women's Hackathon

In June, JCT hosted its first a 44-hour, female-only hackathon, **Hack@Tal**. Over 120 women signed up for the hackathon from JCT's engineering, business, and nursing programs,



and joined forces to create technology products and provide solutions to challenges presented by children's hospitals, tech firms, retail and commercial sites, organizations working on technology for people with disabilities, and more. The women practiced working in interdisciplinary teams, improving upon or learning technology skills, and gaining confidence developing products for the non-profit sector and the high-tech industry.

Of the 19 teams of women aged 18-25 that took part in the event, the judges decided to award the first place to five students whose winning design was created in response to a problem posed by **Intel**: how to improve communications between those first on the scene and emergency treatment centers in the event of a mass casualty incident. They developed a voice-to-text bracelet intended to relay information from first responders to hospitals, which enables paramedics to record data about patients and their injuries. The data is then translated to text and shared with hospitals in real-time through a cloud interface, ahead of the patient's arrival.

ENTREPRENEURSHIP

Second place went to a group that designed an escape room for the blind—another Intel challenge—and third place went to a team that developed an algorithm for identifying whether small flying objects pose defense threats. Students interested in developing their prototypes into finished products will be able to do so with the help of the institution's LevTech Entrepreneurship Center.

Creative thinking activities

All JCT students are encouraged to participate in creative thinking platforms, provided in collaboration with a partner organization. Activities include: improving problem-solving skills, thinking outside the box and learning how to self-teach new programming languages. These are offered in addition to lectures on innovation, the first of which was given by Jerusalem Mayor **Nir Barkat**, himself an entrepreneur before entering politics. Over 150 women participated. Future lectures are planned in the fields of aerospace, software and med-tech.



This program expands opportunities for religious women by providing them with the tools to develop their business skills, aiding them to become completely self-sufficient and to increase their earning potential by opening their own businesses. This project will not only create advancement for the individual participants, but also for their families and communities, as they will inspire other women and encourage them to innovate and embrace new ventures.

LevTech is a collaborative effort between JCT, JCT's Student Union, the **Jerusalem Development Authority** and **JNext**. The LevTech entrepreneurship program is made possible through the support of donors and foundations, including the **Jewish Women's Fund of Atlanta** and **Targum Shlishi**.

In early December, JCT's Lustig Campus, in collaboration with **Microsoft** and **Kamatech** (an organization for integrating Haredim into high-tech), held a hackathon for Haredi women at **WeWork** in Tel Aviv.

The challenge presented to participants related to smartphone photography and was based upon research performed at JCT, wherein students found that men keep

"The program granted us an in-depth understanding of what it means to 'be an entrepreneur,' gave us practical tools and meaningful guidance for establishing a venture and exposed us to people and connections in the start-up industry in Israel and around the world."

Sari Tayar, Industrial Engineering and Management



"The program gave us practical tools and vast information regarding creating a start-up from A-Z with interesting and varied lectures by entrepreneurs and professionals."

Leah Abrams, Industrial Engineering and Management



more than 900 photos in their smartphones, however women have over 1,700.

The judges included, inter alia, **Yoram Yaacovi**, General Manager of R&D at Microsoft, Israel; **Merav Davidson**, CTO of Research and Development and **Dr. Limor Lahiani**, Head of Technological Collaborations also at Microsoft, Israel, **Prof. Chaim Sukenik**, President of JCT, and **Dr. Aryeh Teitelbaum**, Academic Head of Lustig Campus.

JCT students take third place in prestigious IBM competition

As part of JCT's entrepreneurship activities, students are encouraged and receive training to participate in hackathons organized by other organizations. In November, JCT students participated in IBM's CSAW competition for students in information security. Ten teams participated in the finals, and JCT students, **Eitan Kamiani**, **Daniel Miller**, **Naftali Montag** and **Nadav Weiss** came third. The competition, which was held in a "capture the flag" format, took place at Ben Gurion University, where teams wrote code to provide solutions to complicated technological problems.

Eitan Kamiani stated that "the challenge and competition enabled us to utilize and implement the knowledge we acquired at JCT. Our education is practical and enables us to succeed, and we have no doubt that it will help us in the future."

JCT ranked first place in integrating women into computer science

According to data compiled by the Council for Higher Education at the request of **TheMarker**, JCT recently ranked first among all higher education institutions in Israel in the integration of women in the computer science field. 53 percent of the students in its computer sciences department are women, placing JCT a large margin of 18 percent ahead of Bar-Ilan University and Hadassah Academic College, which tied for second place. Despite being a modest sized institution, JCT has approximately the same number of computer science students as the Technion, a much larger university, and its 543 students in computers account for nearly one in five of all female students studying in that field. This, combined with JCT's job placement rate of nearly 90 percent, puts the college among the top producers of high-tech professionals in Israel.



Nursing Department receives National Prize for Excellence

The Nursing Department at JCT was recently awarded the Ministry of Health's National Prize for Excellence. Twenty-four departments of nursing across the country were evaluated. JCT was found to be **the top school in all measured criteria**. The evaluation and rankings are part of a campaign launched by the Nursing Division of the Ministry of Health to motivate schools of nursing to strive for excellence. The funding that JCT's Nursing Department has received over the years from its friends and partners played an important role in this achievement.

The recognition of the excellence of JCT's school of nursing has recently been highlighted by **The Jerusalem Post** and **Yisrael Hayom**. This is not surprising, as JCT's nursing graduates have a pass rate of virtually 100 percent every

year on national accreditation exams—the highest scores in Israel. JCT's BSN program is one of the largest in Israel, accounting for just under 20 percent of all nursing students in the country. There are currently almost 1000 students studying towards nursing degrees at JCT. Among them are 460 Haredim, 180 New Immigrants and 34 Ethiopian-Israelis. Additionally, JCT recently launched Israel's first program in Health Informatics and a new Master's of Science in Nursing.



JCT representatives receiving an award from the director general and head nurse of the Ministry of Health

Two-thirds of Haredi students in computer science study at JCT

New data from the Council for Higher Education (CHE) shows that 1,000 Israeli Haredim studied computer science in 2017, with two-thirds of them studying at JCT. According to the CHE data, there has been a sharp increase in the number of Haredim studying computer science and software engineering: approximately 1,100 students studied these subjects in 2017, an increase of 125 percent from 2013. Haredim make up 7 percent of the 16,000 students studying towards degrees in computer science in Israel.

The total number of Israel's computer science students rose by 23 percent since 2013, when Haredim constituted only 4 percent of all students studying that subject.

Israel's Central Bureau for Statistics found that 85 percent of Haredi students studied in gender-separated environments or at the Open University, which requires minimal attendance. Among those studying computer science and software engineering, approximately two-thirds study at JCT, which combines academic studies and Torah studies. An additional 150 students are studying at the Azrieli College and a handful are enrolled in universities.

CAMPUS UPDATES

Joseph and Faye Tanenbaum Dormitory

Construction has begun on the **Joseph and Faye Tanenbaum Dormitory**, which will consist of four towers with 48 apartments on six floors. It will be surrounded by 2 dunam of green spaces including a recreation area, grassy areas and gazebos. The dormitory is due to open in the summer 2020. The dormitory is a gift of the **Jewish Legacy Charitable Foundation** of Toronto.

New Floors for Israel Henry Beren Institute of Science and Torah

JCT is now finalizing plans to build two additional floors on the **Israel Henry Beren Institute of Science and Torah**. The building was built in 1997 and originally consisted of three floors. In 2000, in order to accommodate a growing student population and thanks to the generosity of **Israel Henry Beren Charitable Trust**, an additional floor was built and an elevator was added to the building. The two new floors, generously funded by **Mr. Robert Beren**, will add 800 square meters of space and will house several large classrooms, research laboratories and offices. Adding these facilities to the current building will go a long way towards solving the shortage of classroom, office and laboratory space at JCT.

Walder High-Speed Imaging Laboratory

The **Walder High-Speed Imaging Laboratory** was recently inaugurated in honor of **Dr. Joseph Walder**. Equipment in the laboratory includes a fast camera with fast frame grabber that enables continuous capturing of 5,000 images to 100,000 images per second. The laboratory also serves the new Master's degree program in Applied Physics. The winners of this year's Jerusalem Science Quiz visited JCT and witnessed a demonstration by **Prof. Avi Caspi** on the research being performed in the field of high-speed imaging.



Research Equipment

JCT has received a generous donation from **Drs. Irving and Vivien Skolnick** for research equipment in honor of their children, **Rabbi Heschel and Sarelle Weiner**, and their growing family in Israel.

Eternal Lamp and Ark

An eternal lamp (*ner tamid*), and new covers for the Torah Ark and podiums were recently dedicated by **Dr. Stewart Fordham** and **Ms. Marlene Weingarten** in memory of their family. The stunning artwork was designed to match the beautiful décor in JCT's recently renovated Beit Midrash.

Connecting to Industry: JCT Job Fair



The academic year is drawing to a close, and many JCT graduates and students are looking for their way into the workforce. Hundreds participated in a job fair featuring leading companies in Israel, including **Mobileye, Intel** and **Orcam**.

One of the participating students, Shimon, who is studying in his third year in the Department of Industrial Engineering and Management, said, "I am interested in finding a job in a student position right now, in order to add practical experience to my academic studies, and I hope that this combination will give me market advantage."

Yael Gandman, head of the Placement Department at JCT, noted with satisfaction the dozens of companies that participated in the fair and said, "This is another quality standard for the college, which is keen to be at the forefront of the academic and industrial ties, to constantly stay attuned to market requirements, and to improve and update our programs."

At the conclusion of the job fair, the students heard a lecture by representatives from the global consumer goods company **Procter & Gamble** about how to run successful sales campaigns for popular home brands found in Israel and overseas, and what tips and techniques can be used to

improve negotiations with potential customers or business suppliers. The students received practical advice and different tactics for succeeding in the job market and bringing about excellent outcomes for their future employers.

Congratulations to our new graduates



Mazal Tov to the 781 students (287 men and 494 women) who received their bachelor's degrees, and to the 45 students who received their master's degrees this past academic year.

Among the graduates were 12 students from the Ethiopian community, 314 Haredi students (57 men and 257 women) and new immigrants from around the world.

169 nurses and 446 engineers have joined the workforce this year following graduation from JCT, helping reduce the severe shortages in both fields.

International program strikes unique Torah-academic balance for Yeshiva students

For so many yeshiva students, intensive Torah study is a way of life. However, their young adult years overlap with another time-consuming priority: attaining a professional degree or trade.

JCT's International Program in English allows students to continue learning with their rabbis in yeshiva in Israel, while also providing them with the opportunity to obtain a prestigious academic degree and strong professional training in the area of business.

"I was 24—I needed to start my degree," recalls **Saul Rothman** of Los Angeles. "At JCT, I could still learn Torah while also study computer science, which was exactly what I wanted to study."

Dovid Samuels of Memphis says, "The main reason I chose JCT was the religious environment coupled with a recognized

technology degree. There is not a single college that is on par with JCT in terms of its religious level while still maintaining a competitive educational level."

JCT launches online job training for Haredim



Successful integration into leading companies is not only dependent on the qualifications of applicants, but also largely on their performance during the interview process. This is a skill for which Haredim often require assistance.

In order to further address the specialized needs of students from the Haredi community, JCT has produced short videos with interview training and tips. These videos, the first of their kind, were created following years of consultation with the Haredi community to learn how to meet its unique needs. Online courses are particularly helpful for Haredi students since many of them are married and cannot afford to spend hours on elective workshops in addition to the already intensive curriculum at JCT.

The videos were uploaded to JCT's social networks and are available not only to JCT students and graduates, but to any Haredi man or woman who might seek assistance in this area. The videos address topics such as the stages of selection process, preparing for an interview by becoming acquainted with the company, self-presentation, and what to do when you lack professional experience. Perhaps most important for the Haredi community are topics such as body language and how to maintain eye-contact, which can be challenging when being interviewed by members of the opposite sex.

These videos are just one of the many job placement activities offered to students at JCT, including one-on-one guidance, placement workshops, job fairs and an internship program. These initiatives would not be possible without the support of the college's generous friends, including the Samis Foundation, the Jewish Federation of St. Louis, and the Max Barney Foundation.



Bolster Cybersecurity industry by expanding access for religious community

By **Orlee Guttman**, Director of Strategic Partnerships.

At its core, Israeli ingenuity is about best utilizing and amplifying the ideas and skills of the people of Israel.

Shin Bet chief **Nadav Argaman** has described cybersecurity as the “main tool in the daily work to thwart terrorism.

“As of today, the ability of rivals to take shortcuts to acquire groundbreaking technologies, which in past they could not do, compels us to be better than we used to be,” he said at the Cybertech TLV 18 conference in January. “Therefore, we must be at the global front of technology, and that is what we are trying to do and working on daily.

Cyberwarfare can include attacks on critical infrastructure, the banking industry, hospitals, aerospace and defense, and much more. Hamas hacked the phones of dozens of Israeli soldiers last year. Attempts to attack Israeli critical infrastructure, including water, electricity and railroads, number in the hundreds of thousands per day, according to Prof. Isaac Ben-Israel of Tel Aviv University. If the attacks would be successful, disasters of huge proportions could ensue, God forbid.

This is a clear, present, and costly global threat and burden. According to the World Economic Forum’s 2018 Global Risks Report, cyberattacks are among the five most serious current risks internationally. PwC has reported that cyber threats are the fourth-greatest worry for CEOs, and that 87% of CEOs worldwide are investing in cybersecurity to build trust with customers. The Cybersecurity Ventures market research firm has estimated that cyber-crime damage will cost the world \$6 trillion annually by 2021.

Israel consistently stays ahead of the curve when it comes to global trends in technology and security, and the cyber sector is no exception. In 2017, the Israeli cybersecurity industry raised more than \$814 million and accounted for 16% of that industry’s total international investment, trailing only the US. Israel’s strong cyber identity stands to benefit not only the country’s security, but also its economy, with cyber products and services becoming a popular national export amid the skyrocketing global demand for them.

Yet, despite constantly escalating cyber threats and rising cyber investments, some in Israel’s cybersecurity industry have estimated a shortfall of close to 2,000 highly trained

cyber engineers, which will continue to rise. Why? There just doesn’t seem to be enough employees who are properly trained for this field.

The primary path to senior positions in Israel’s cyber industry – roles in which great minds can truly make a difference – is participation in cyber units within the military. This makes the field virtually inaccessible to computer science and software engineering graduates from the Haredi (ultra-Orthodox) and National Religious communities, which are traditionally not represented in those army intelligence units. This ultimately means that Israel’s commercial and defense cyber sectors are missing out on outstanding engineers from across the religious community.

JCT, however, is filling the gap and helping the cyber industry access this crucial source of manpower through the Cyber Elite program. This marks the latest phase of JCT’s broader mission to strengthen the economy and security by providing religious students with the highest level of academic and practical training in engineering, business, and health sciences.

Apart from Cyber Elite, JCT as an institution believes in training students from the National Religious and Haredi communities to reach their highest potential. We do not believe in selling them short by offering them short-term training just so that they can get jobs. It is a long-term investment. Religious students have exceptional skills, and we help them develop those skills in order to transform the industries they work in.

Cyber Elite also coordinated the employment segment of the program in partnership with 16 companies in the cyber industry. All of the companies where Cyber Elite participants currently work have expressed interest in offering them full-time employment when the program ends, and approximately 30 other companies would like the opportunity to recruit them.

All of the companies reported that the Cyber Elite students are intelligent, curious and hard workers who rise to, and often surpass, the challenges given to them. The companies have told JCT that they are extremely appreciative of Cyber Elite because they never would have had the opportunity to meet or employ these students without this program.

The students, in turn, have repeatedly affirmed that without Cyber Elite, it would have been impossible for them to enter this industry without the special training and employment that the program helps provide. These outcomes were previously unimaginable.

Through Cyber Elite and all of JCT's academic offerings, the college effects significant positive socioeconomic change and creates greater harmony in society by enabling various sectors to work together and learn from one another in the workforce. A view of JCT's students and graduates completely counters any stereotypes about the haredi community's contributions to the State of Israel.

At its core, Israeli ingenuity is about best utilizing and amplifying the ideas and skills of the people of Israel. Cyber Elite is ensuring that the special and often overlooked talents of the religious community are maximally put to work amid an ever-changing security landscape.

The Atuda Program at JCT



Iron Dome, Arrow and nearly every other major defense technology in Israel was developed in part by Atuda program graduates, many of whom studied at JCT.

The Atuda program enables students to defer their army service to after they complete a degree in various fields that they will later utilize in the IDF. The process includes three years of studies, during which the students enlist and undergo basic training during summer vacation. During their studies, they are also called for duty that suits their level of training. Afterward, they are required to serve an additional three years in the army. In order to qualify for Atuda, students need to achieve high scores on their psychometric tests and undergo intensive interviewing. As part of the program, close to 80 percent of the students' tuition is covered by the army.

Nearly 250 students participate in the Atuda program at JCT annually, including Haredim and Ethiopian-Israelis. These students study electro-optic engineering, electrical engineering, telecommunications engineering, industrial engineering and management, computer engineering and

computer science, all of which are crucial for the defense sector.

Eli Shalman, head of student administration and deputy director general at JCT, says, "Israel desperately needs the talented technically people in Atuda, no less than it needs combat soldiers. Some make a career out of it and reach top positions in the army. We have graduates in high ranks, such as colonels and brigadier generals."

One of JCT's Atuda graduates, identified only as "**S**" due to the IDF's privacy rules for soldiers, received the Israel Defense Prize last year for his contributions to the Arrow 3 missile defense system and **Col. Yaniv Avitan** won the coveted prize this year for his contribution to the project that is helping to destroy Hamas tunnels on the border with Gaza. Yet another JCT graduate, whose name we are not allowed to publicize, also won the coveted defense prize this year for a highly secret mission.

Now Online: JCT's Beit Midrash



JCT recently launched a website for its Beit Midrash. The new website gives users on-the-go access to lectures on a wide range of subjects such as *halacha* and the weekly Torah portion, as well as classes that combine Torah and science.

The interactive system allows users to optimize their free time and choose from a list of options to meet their time constraints, in video, audio or text form. Through the website, users are also able to remotely join the weekly classes offered through the brick-and-mortar Beit Midrash at JCT. Further, there is an option to dedicate a day of learning to a friend or family member with a simple click of the button. Learn more at www.midrash.jct.ac.il.

JCT to study Earth – from Space



President Emeritus **Prof. Noah Dana-Picard**, researchers and students of JCT will study changes to natural vegetation of the Earth and Israel's water cycle via the Israeli-French "Venus" observational satellite, as part of a space-related collaboration between those two countries. The two-year research project, funded by a research grant from Israel's Ministry of Science, will be conducted in the Space Science Lab at JCT.

JCT researchers and students will be working in collaboration with scientists of the Aerial Company in France and with the ground support staff of the Venus satellite.

JCT teams with Australian university to pioneer ocean debris tracking model

The Jerusalem College of Technology (JCT) and Australia's UNSW Canberra have teamed up to create the state-of-the-art Plastic Marine Debris (PMD) tracking and predicting model, which offers new insights into debris dispersion.

JCT's team is led by **Professor Erick Fredj**, chief scientist of the Coastal Ocean Research group at the college, who has decades of experience in scientific research and teaching. He has spent the last eight years researching with groups around the world—in the U.S., Israel, Italy, Taiwan, and Australia—developing and applying model-based analysis systems for interdisciplinary research on larval dispersal, penguins, rescue, and most recently, projects on marine plastic debris and marine animal carcass tracking.

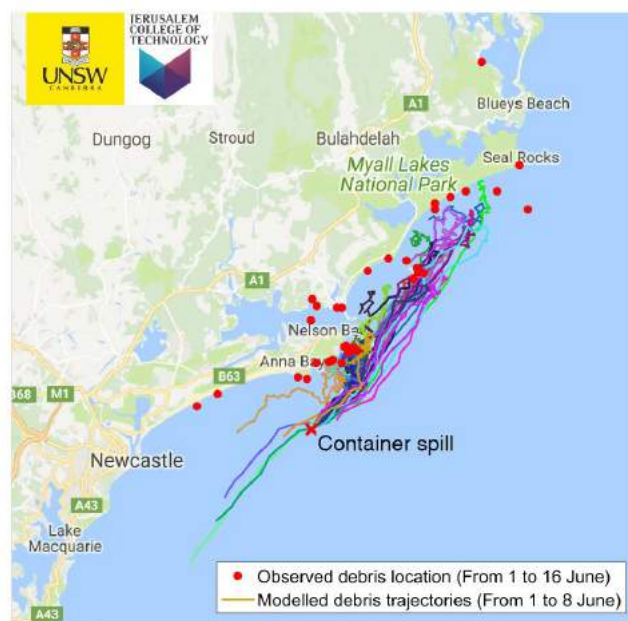
The UNSW Canberra team is led by **Dr. Isabel Jalón Rojas** and includes **Professor Xiao Hua Wang**, director of UNSW Canberra's Sino-Australia Research Centre for Coastal Management, and PhD student Fanglou Liao.

The teams have applied a PMD model to track 81 containers that spilled overboard from YM Efficiency off Australia's coast near Port Stephens. The ocean debris tracking model is now able to predict the dispersion of lost cargo days ahead of its arrival, and the beaching patterns have matched well with the observed beached debris. The containers were transporting plastics, diapers, furniture, and tires. The nature of the debris effects how it is dispersed.

Dr. Jalón Rojas has analyzed data tracking the debris, which demonstrates that the debris has shifted both north and south along the New South Wales coast using a 2D model to track the transport of debris in surface waters. The team is also working on a 3D model that can track the debris route beneath the ocean's surface.

Dr. Fredj says the 3D model will consider more complex biophysical processes involved in the transport of marine debris. "The plastic marine debris problem can be viewed as a source, pathway and sink problem," he says. "Simulations using numerical models can be important tools in estimating any of these three issues. Simulations can also be used to test hypotheses addressing knowledge gaps within these three topics."

The retrieval of debris continued for several weeks and over 1000 square meters of waste was collected, according to the NSW Maritime agency. Only a few of the containers were washed ashore. If the tracking project is successful, it could be applied to other incidents across the globe and enable more effective clean-up efforts from environmental disasters.





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