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A Lesson in Diversity

Jerusalem College of Technology – Lev Academic Center

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Commentary

As I write these words Operation Protective Edge is hopefully over. The unfurling of tragic events over the summer, the unity that ensued, the stoic determination and courage of our brave fighters and the clear hand of G-d protecting us, has given rise to a whirlwind of emotions and little mood for vacation.

The unparalleled success of the IDF's Iron Dome and Trophy (Windbreaker) protection systems has saved countless lives and brought us much pride. Jerusalem College of Technology electro-optics and electronic engineering graduates and faculty are playing important roles in developing these advanced technologies. Most of their work is top-secret and cannot be described, but we owe them all a deep sense of gratitude for all that they accomplish.

Other JCT graduates are contributing to Israel's global recognition as a leader in high-tech entrepreneurship through their innovative inventions and applications and are receiving much publicity and recognition for their achievements. Nearer to home, our fledgling nursing program is graduating nurses who are becoming renowned for their expertise, compassion and care. Its success has led to the opening of a first of its kind nursing program for men in the coming year which will help ease the shortage of nurses and enable observant men to work in this sought-after profession.

Through its pro-active endeavors to reach out to different sectors of the community and invest in special programming, JCT enables diverse segments of Israeli society to become productive and successful members of Israel's workforce. This includes many talented young people who otherwise would not have the opportunity to pursue academic studies such as Ethiopian graduates who have reached the rank of Major in the IDF or Haredi graduates working on covert defense projects.

As we approach the New Year 5775, we gain strength in the knowledge that the Jerusalem College of Technology – Lev Academic Center will help Israel continue to build a promising future on the foundations of its prolific past.

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Rosalind Elbaum Director of Development and External Affairs



President's Message

The question that I have been asked the most over this past year, my first year as President of JCT, is: "What is your vision for JCT?" The people asking this question are often those who are very familiar with our 45 year history and its impressive achievements. They are rightly proud of our past but they understand that our focus must be on our future.

Since any vision of the future requires understanding the past and the present, I have spent a lot of time this year listening and soliciting input. We have put in place Advisory Committees to help guide many of our engineering departments and we continue to benefit from the external review processes conducted by the Council of Higher Education. I would like to share with you some of the insights I have gained along with a glimpse into my dreams for our wonderful institution.

Though our programs and student population are more diverse today than in our early years, we are still committed to the standards of excellence that were built into our organizational DNA by Professor Zeev Lev. We have developed high level academic programs in engineering, health science, and management that are serving our core clientele from the Israeli National Religious community while reaching out to previously under-represented

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populations. This began with the establishment of our women's program and with our outreach to the Ethiopian community. Those successes have provided the platform that has positioned us to help solve the #1 economic issue facing Israel today: enabling the Haredi community to become economically self-sufficient. We are committed to being in the forefront of the effort to provide Haredim high quality academic training while allowing them to proudly contribute to Israeli society and to their own financial future.

Our commitment to academic excellence is unwavering. We are actively upgrading our teaching laboratories with the acquisition of state-of-the-art equipment and we are working towards the development of new MSc level programs. These graduate degree options will strengthen the research capabilities of our faculty members and will allow us to offer joint BSc/MSc degrees in coming years. Our goal is to offer programs that will make us an attractive option for outstanding students, while still allowing us to serve those who need an extra helping hand to overcome various kinds of educational and cultural disadvantages. Our students must know that they will get an education that will position them at the forefront of the employment market and make advanced studies possible.

Our commitment to high level religious studies remains strong. This will be further defined and strengthened over the coming year as we begin the process of selecting a new Head for our Beit Midrash program. HaRav Natan Bar Haim has served in this capacity with distinction for over 40 years and will be retiring at the end of this year. In anticipation of this transition, a committee has spent this past year reviewing our *limudei kodesh* programs. Their report will provide the framework for building new, attractive opportunities in advanced Jewish Studies for both our men and women. In a related development, a recent, generous donation is enabling a substantial renovation of the Beit Midrash facility at the Givat Mordechai campus.

This has been an extraordinary year in many ways. Am Yisrael be'Eretz Yisrael has been tested by tragedy and by the ravages of war and has proven its resilience in a most impressive fashion. I am sure you all share my pride in the contributions that our students and staff have made to the success of the IDF, as well as the hope and prayer that the mutual caring and support, the *achdut* (national unity), that we have been privileged to see under those trying circumstances, will persist and continue to grow stronger.

Ktiva Ve'Chatima Tova,

Chaim M. Suberil

Chaim Sukenik

Dvar Torah

Shoftim and *Ki Tetzeh*, the *parashot* that we read during this time of year, tell of a soldier heading out to battle for the defense and preservation of Israel.

The following *psukim* clearly show that there is a moral and *halachik* demand from soldiers to act morally and meticulously to keep the Torah and *mitzvot* even in the difficult time of war. Their responsibility is double as they must keep the *halachot* related to both their enemies and themselves. Such demands include the obligation to call in peace to an enemy city before a siege (*Devarim* 20, 10-18) and the prohibition on destroying fruit-bearing trees during a siege (*Devarim* 20, 19-20). Here, the moral requirement is both to refrain from destroying the enemy population's food and due to *Ba'al Tashchit* (the law forbidding destruction) of the fruit-bearing trees.

This is one aspect of the moral requirements, while another is the responsibilities toward the inner-circle of the camp. A famous Latin proverb states, "In times of war, the law falls silent." This maxim expresses a view that war is separate from civilized life, which is subject to the laws of integrity and ethics. That war instigates an outbreak of primeval instincts – of aggressiveness and survival – and so is not subject to any set of laws.

In opposition, the Torah sets a very clear behavioral moral standard: "Thou shalt keep thee from every evil thing." (*Devarim* 23, 10). The aforementioned parsha deals with the necessity to strictly maintain modesty and cleanliness when staying in the camp, and refraining from *Lashon Hara*, "from every evil thing – from speaking evil" there is no profligacy in Israel, it is especially during times of war that it is important to both uphold the laws of modesty and Lashon Hara, the lack of which would severely damage the unity and camaraderie between the combatants, making it far more difficult to fight the enemy.

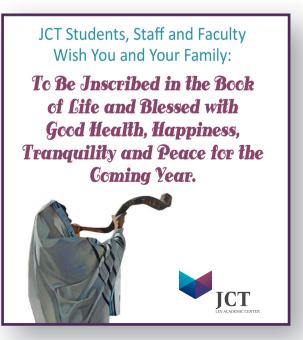
"For the Lord thy G-d walketh in the midst of thy camp... therefore shall thy camp be holy..." (*Devarim* 23, 15). The camp of Israel is a holy camp. The Bible and the Sword were given intertwined from Heaven. Setting out to war is the culmination of the study in the Beit Midrash and therefore there can be no moral concessions in this regard.

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It is nearly impossible to refrain from relating this to Operation Protective Edge in Gaza this summer: with pilots that refrain from shelling terrorists because they are hiding in densely populated areas and hospitals, where giant tractors set out to destroy tunnels but make every effort to spare their fruit-bearing trees and crops, these are just several examples of the high level of morals upheld by the IDF fighters. These stand in complete opposition to the morals, or lack thereof. of the cruel enemy that we face who uses women and children as human shields and sends rockets at innocent civilians. This enemy, whose commanders hide underground, is unlike the commanders of the IDF who lead their soldiers into battle fully convinced in the righteousness of their way and the understanding that they are fighting for our homes and that "the Lord your G-d is the one who goes with you, to fight for you against your enemies, to save you" (Devarim 20, 4).

We would like to take this opportunity to express our deep thanks to the students, graduates and faculty of the Jerusalem College of Technology – Lev Academic Center, who put their lives on the line and fought to protect us this summer. We hope that the New Year will bring with it a year of peace and tranquility, of salvation and comfort, prosperity and success for all of Israel.

Dorel Abramovitz





JCT – A Lesson in Diversity

Eli Schreibman, a new immigrant from the US, sits across from **Asmara Malaku**, recently arrived from Ethiopia, in a computer science class at JCT. As they cross the campus together they stop to speak with **Itzik Beck**, a Haredi father of two studying computer systems engineering. Their friends and fellow classmates at JCT come from diverse Jewish backgrounds and all walks of life in Israel and around the world. This incredible diversity is mirrored in JCT's women's programs.

As the first college to combine Torah and science, JCT is the academic flagship of the religious Zionist community. It takes great pride in its flourishing student body and its extraordinary impact instilling the values of Torah and love of Israel among so many different populations in Israel.

According to **President Emeritus Professor Yosef Bodenheimer**, JCT's student body has always been diverse. JCT's pilot class, which opened in 1969, consisted of 20 religious-Zionist Ashkenazi and Sephardi students, Zionist Haredim and new immigrants. All shared a passion for Torah learning while earning top academic science degrees. Today, 20 percent of JCT's student population is newcomers from the US, France, Canada, England, South Africa, Australia, Morocco, South America, Ethiopia and the former Soviet Union (FSU).

New Immigrants from the Former Soviet Union

When thousands of immigrants began to arrive from the FSU with no knowledge of their Jewish identity or of Hebrew, JCT immediately established programs for both scientists and students. The scientist program immersed brilliant academicians and scientists in a sixmonth Hebrew language course so they could integrate in, and contribute to, Israel's scientific community. Some became JCT researchers and professors, such as **Prof. Uziel Sandler**, Head of the Bioinformatics Department, who is carrying out groundbreaking cancer research.

The student program included a pre-academic preparatory program with classes in Hebrew, Jewish tradition and professional training. After the first year, students were integrated into the regular degree program. Hundreds of students participated in this program; several of them continued on to other degrees and are now working at JCT. A new generation of newcomers from the FSU connected to their heritage and became valuable members of the religious-Zionist community.



New Immigrants from Ethiopia

Asmara Malaku made Aliya with his parents and seven brothers and sisters from Ethiopia's mountainous Gondar region in 2008. An incredibly bright student, Malaku has bridged tremendous educational and cultural gaps and with JCT's support he is studying electro-optics at JCT.

Bantziamlek Daras, 22, made Aliyah from Ethiopia with her family at a young age. Against great odds, including a sister who has severe epilepsy and parents who are barely able to work, Daras is now an honors student in her first year at JCT's Nursing School.

Malaku and Daras participate in JCT's Education for Ethiopian's (EFE) program. Established in 1998, this was the first higher education program for the advancement of Ethiopians, and is a springboard for their success. Adi Yonas, the current head and graduate of the program says, "Despite the fact that the majority of these students come from families with little or no previous exposure to higher education, JCT provides them with both academic and financial support, enabling them to earn degrees and integrate into the high tech and science industries as well as attain high positions in the IDF."

Women

JCT was at the forefront of revolutionary change in religious women's higher education science studies in Israel. Whereas once science, engineering and high tech were considered "men's" fields, in 1999, after being approached by both the government and women's institutions, JCT opened the doors for religious-Zionist and Haredi women to pursue careers in these fields through the Tal and Lustig programs.

JCT offers women the opportunity to maintain a religious lifestyle, with religious learning, while ensuring a high level college education and offering financial and educational assistance.

Esther Wolf, 20, a married Hassidic woman is one of nine children. Her mother-tongue is Yiddish and she did not learn English at her high school religious seminary. Despite her family's disapproval of her "rebellious" ways, Esther is determined to get a college degree and advance. She is in JCT's pre-academic program and travels three hours back and forth to attend classes.

With a JCT scholarship she is full of hope for the future.

Israeli-born **Nurit Shitrit** from the southern town of Yavneh received her degree from JCT in electric-optic engineering. As an outstanding student, Shitrit did her senior project with the Nahal Soreq Nuclear Research Center (NRC) on hollow waveguides for nonlinear optics. NRC was so impressed with Shitrit's work she is now an employee. At the same time she is studying toward her MA degree and writing a thesis on her work.

Over 2,300 women have earned their bachelor's and master's degrees in science and technology at JCT, and many have reached leading positions in their fields.

The Haredi Community

JCT was one of the first academic institutions to offer vocational training to Haredim, and has been a staunch proponent for their integration into the workforce.

"Since 1996 we have been the catalysts for training Haredim to enter the job market," says **Meir Komar**, one of the founders of the original Vocational Training Program for Haredim, "and for ensuring the achdut (unity) among our students by finding common ground in Torah learning and academic challenge."

In 1999, a successful year long computer programming course was piloted that included the option to continue to a higher education track. The program offered pre-academic courses to bring students up to speed and was the catalyst for a new initiative, Halamish, a pioneer program for college education for Haredi men. Spearheaded by leading Israeli industrialist and philanthropist **Eitan Wertheimer**, Halamish streamlined efforts to empower Haredi men to pursue higher education in engineering.







"We need to bring more people into the professional workforce and ensure more balanced wealth distribution to close the ever-widening socioeconomic gaps in Israel," says Wertheimer of the Halamish program that is headquartered at JCT.

Painting a Picture of Inclusion

Across all of its academic, vocational and religious programs for men and women, JCT brings together young people from different ethnic groups, religious communities and socio-economic backgrounds. Its policy of inclusion has created a dynamic student population that enables students to learn from one another, and about each other, and open the door to new social experiences and understanding.

JCT gives all of its students a jumpstart to academic and professional success. At the same time it nurtures a social environment that builds a more tolerant, just and open society based on the religious, Zionist and academic values intrinsic to JCT. Yoni Watta, a computer science graduate and now a Major in the IDF sums it up best when he says, "JCT is the Technion of the religious community. The population here is different and it is great to be part of a place like this. To graduate from JCT and be a part of the quality graduates leading the Israeli market in all fields, along with the mutual support and the willingness of fellow graduates to always help each other, is a massive privilege. I received so much and I have reached a place in my life in which I can truly appreciate this and give thanks."



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JCT - A Lesson in Diversity

A President's Visit

"In Israel, a land lacking in natural resources, we learned to appreciate our greatest national advantage: our minds. Through creativity and innovation, we transformed barren deserts into flourishing fields and pioneered new frontiers in science and technology."

Shimon Peres, ninth President of the State of Israel

At the age of 92, former President Shimon Peres is a strong advocate for the power of the young generation to lead Israel forward. During a visit to JCT before the end of his term, Peres was impressed with the diversity of JCT's student population and faculty, and with the Institute's incredible technological achievements.

"During my visit, I learned that JCT teaches paramount values that are important to us all," said Peres. "These values can break through the barriers of Israeli society and nurture and improve mutual recognition, tolerance, respect, attentiveness and a universal brotherhood of man."

Peres also praised JCT's efforts to integrate Haredim into academia; helping them to bridge educational gaps and giving them opportunity to complete their undergraduate degrees.

"JCT is living proof that Torah, employment, academic education and high tech can be combined and shows that members of the Haredi community can find a way to study and work without having to change their lifestyle. This will facilitate their efforts to make a living and ensure a better future for their children, in addition to contributing to the Israeli economy."



Haredi student Yitzchak Miller demonstrating his Book Engraving project to (left to right) former President of Israel Shimon Peres, JCT President Prof. Chaim Sukenik, and JCT CEO Shay Gilboa

JCT Hosts Ministers, Members of Knesset and Chief Rabbi

A number of key Ministers and Members of Knesset visited JCT this year to learn about its successful programs, as did **Chief Rabbi of Israel, Rabbi David Lau**. Among the visitors were Minister of Transportation and Road Safety **MK Yisrael Katz**, Chairman of the Lobby for Students and Higher Education **MK Boaz Toporovsky**, Deputy Minister of Education **MK Shimon Ohayon**, Minister of Agriculture and Rural Development **MK**



Chief Rabbi David Lau at Lev Beit Midrash

Yair Shamir, Minister of Science, Technology and Space MK Ya'acov Peri, Chairman of the Education, Culture and Sport Committee MK Amram Mitzna, and former Israeli Minister of Defense and Chief of Staff MK Lt. General (Res.) Shaul Mofaz. These join a long list of MKs who have supported JCT over the years, including Minister of Economy MK Naftali Bennett and Minister of Housing and Construction Uri Ariel.

The MKs emphasized the importance of JCT's unique programs and promised to act to advance issues that contribute to its continued success.

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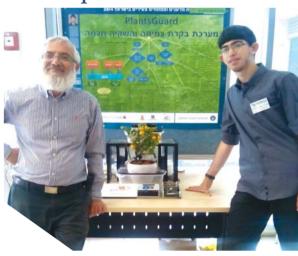


Awards and Achievements

Second Place in Stockholm Water Competition

Achimeir Shainwald, a student at JCT's Torah U'Mada High School, won second prize in the Stockholm Water Competition held at Tel Aviv University. The annual Competition, sponsored by the Swedish government and attended by the Swedish Ambassador to Israel, focuses on water-related technological projects. Shainwald's project, PlantsGuard, improves garden planning through the development of a smart growth and irrigation system. This system sends hormones to plants to prevent early blooming, a phenomenon that is not always beneficial to gardeners.

(Students at the Torah U'Mada High School for gifted students study toward their bachelor of science degrees in computer science at JCT in conjunction with their high school matriculation program.)



Achimeir Shainvald (right) and advisor Yisrael Elishevitz

JCT Continues to Excel - Ranks 1st and 2nd in CPA Exams

The results of the 2013 National Advanced Finances CPA exam were recently published and revealed that 97% of JCT accounting students succeeded in their exams. This put JCT in first place among other academic institutions. "We will continue in our efforts to maintain this ranking and to maintain the highest professional level," said **Prof. Herzl Patel**, Dean of the Management Faculty and Head of the Department of Accounting at JCT.

In last winter's Account Auditing CPA exams, JCT's students ranked second, with 74% success. This was significantly higher than the national success rate of 50%.

In addition, JCT student **Evyatar Eiloz** will receive a silver medal at the CPA licensing ceremony from the Minister of Justice for placing second out of 1,500 students on the Advanced Finances exam.

JCT Students Place Third for User Identity Safety System

JCT students **Eliran Gilad** and **Nehemia Lilenthal** placed third in a competition held by the Society of Electrical and Electronic Engineering-Israel (SEEEI) for their new on-line user identity safety system.

The two students developed an algorithm which allows their new system to store digital signatures instead of user identities and passwords, preventing hackers from obtaining such information.

Until recently, digital signatures for identity safety required specific software. Gilad and Lilenthal used hardware that is 100 times faster than the software.



Gilad stated, "We are proud to be among the top three winners, and we hope we will be able to help preserve the safety level of the Internet."

Special Programs

Students Can Now Learn at Yeshiva while Earning a Business Degree in English

A new opportunity awaits English speaking yeshiva students at JCT's new International Program. They can continue their Yeshiva studies in Israel and earn a BA degree in Business Management.

The three-year program is modeled after international studies curriculums developed by leading universities around the world. It combines theoretical and practical studies in management and marketing, with a focus on technology.

With one and a half days of study per week, students spend the majority of their time in the Yeshiva of their choice. As such, the International Program is a great solution for young men who are considering Aliya, or new immigrants who prefer to study in English.

"We're telling these kids you can don't have to leave Israel, or leave Yeshiva, in order to get an academic degree at a prestigious college," says **Rabbi Adi Isaacs**, Director of JCT's International Program in English. "This is the only program of its kind in Israel."

The annual cost of the program is \$3,650, which is significantly less than earning a BA degree in the US. Students who wish to return to the US during their studies can receive academic credit from most major universities. JCT plans to expand the program to include a degree in Computer Engineering in the upcoming year.

"This program is a perfect stepping stone for young men to build their futures in Israel," says Isaacs.



Marketable Skills Taught at Center for External Studies



JCT opened a Center for External Studies to provide marketable skills courses that give students immediate employment options. More than 350 motivated young men have participated in the Center's courses over the past year.

"We are in constant contact with leading companies in order to assess market needs and newly emerging fields and find out which skills are the most sought after," says Program Coordinator **Yochanan Kirshenbaum**.

In a pilot course with global giant CISCO's Networking Academy Program, 10 JCT computer department employees and teaching assistants became accredited CISCO system managers.

Courses currently offered by the Center include Financial Management and Investment, Android Applications Development, Net Development and SQA. Scholarship support by the **Maks and Lea Rothstein Charitable Youth Trust** enables many students from the Haredi community to take part in this program.

"Many of the Haredi young men are married with children, and they cannot afford the time spent to earn a degree," says Kirshenbaum. "These courses offer the perfect solution, providing them with a skill that they can immediately take to the marketplace."

The Center has opened a Hebrew ulpan for new immigrants, and 20 men have already enrolled. Plans are underway to provide courses in English to assist graduates to integrate into the job market.



New Nursing Program for Men

In a ground-breaking decision, the Council of Higher Education has approved the opening of a nursing program for men on the Lev Campus, the first program of its kind in Israel. This program, under the auspices of JCT's Nursing School, will help to alleviate Israel's nursing shortage.

JCT's nationally renowned Nursing School was previously for women only. This program boasts over 600 students and its graduates consistently achieve top scores on the national board examinations. They are highly sought after by Israel's major hospitals.

The majority of participants in the new men's program will come from the Haredi community. They will participate in a year-long Pre-Academic Preparatory Program (*Mechina*) to bring their grades up to par.

Under the leadership of **Prof. Chaya Greenberger**, Head of the Nursing School, the men's nursing program aims to attract an outstanding male academic staff.

JCT has embarked on a major campaign to prepare the infrastructure for this program, including cutting-edge laboratories, classrooms, state-of-the-art equipment, teaching aids and specialized software. In addition, an extensive medical library will be established, with reference books and up-to-date periodicals and journals, both hard copy and on-line.

The School of Nursing maintains the highest standards of theoretical and practical education and provides each student with individual attention in a supportive and competitive environment.



Education for Ethiopians (EFE)

An incredible 98% of the 110 graduates of the Education for Ethiopians (EFE) Program have found work. This year, an additional six men and one woman have received their degrees and have already found employment in their fields.

There will be 138 students in the program during the upcoming academic year.

JCT thanks the Rosenzweig Coopersmith Foundation and the Glencore Society for Education and Welfare for supporting this vital program and the Samuel Sebba Charitable Trust, the Maurice and Vivienne Wohl Philanthropic Foundation and other foundations for providing scholarships.



EFE students with Program Coordinator Adi Yonas (top center)

Nursing Partnership with Shaarei Zedek Medical Center

JCT has signed a cooperation agreement with the Shaarei Zedek Medical Center to take over the training of nurses in the hospital's Nursing School. The Shaarei Zedek nursing students will now be an integral part of JCT. They will study a four-year academic program and receive a Bachelor of Science of Nursing degree from Campus Tal on graduation.

10 Years Since the Passing of Prof. Ze'ev Lev

Next month marks the tenth *yahrzeit* of our founder and first president, **Prof. Ze'ev Lev** (Willy Z. Low). JCT will commemorate this event with a memorial evening to be held on Campus Lev on Wednesday, October 1, 2014 at 7 p.m.



Prof. Lev was born in 1922 in Vienna, Austria, to a rabbinic family of Tchorkov Chasidim from Galitzia. He studied in Vienna and Berlin. Towards the outbreak of World War II, Lev's parents sent him to England, where he studied at the Talmudic College in Gateshead. At the age of 18, he was sent together with thousands of Jewish refugees to an internment camp in Canada. After his release, he returned to academic and Torah studies.

Prof. Lev received his first degree in physics with first class honors at Queen's University, Canada. In 1950 he received his PhD, as well as rabbinic ordination. In the same year he made Aliyah to Israel, taking a position in the Department of Physics at the Hebrew University. In 1962, at the age of 40, Prof. Lev won the Israel Prize for his work in the field of paramagnetic resonance.

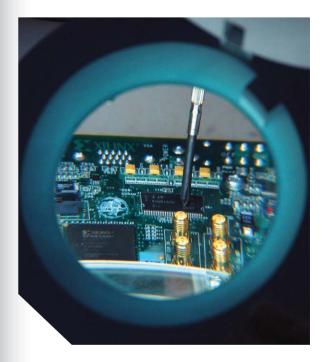
In 1969, Prof. Lev founded the Jerusalem College of Technology and for ten years he was JCT's first president and rector. Following this, Prof. Lev continued to serve JCT as chairman of the Board of Trustees, as well as through his research and writings.

Professor Ze'ev Lev passed away on the 17th Tishrei 5764, but the legacy of his monumental achievements lives on.

"The Institution I envision will educate students to synthesize their profession with a Jewish way of life... not only to provide manpower for Israel's developing high tech industries, but to produce leaders who are strongly committed to Israel, Jewish values, to our People and to humankind..." Prof. Ze'ev Lev

A New Program for Excellence

JCT's new *HaEytanim* program will let outstanding students from underprivileged families "move to the head of the class". *HaEytanim* will train the best and the brightest students to think creatively and bring out-of-the-box-solutions to industry and high tech when they enter the workforce.



Parallel to their regular academic studies, students will participate in eight additional courses ranging from creative thinking to methods for developing solutions, entrepreneurship and strategic planning. The program also emphasizes Jewish values and leadership, with each student engaging in meaningful community service work.

"This new program provides advantages that are not available in any other institution in Israel," says Program Director **Rabbi Dr. Avi Karsenty**.

One of these advantages is gaining practical experience while still in college. "This is paramount," says Karsenty, "as it provides students with real knowledge of the industry and business world that will prepare them for entering the workplace."



Major Strides in Corporate Placement

Innovation and revitalization have resulted in great success for JCT's Job Placement Department. Over the past two years 91% of graduates have found employment, 79% working in their field of study.



Job Fair held earlier this year

Thirty-six companies have visited the campus, 31 job placement workshops were organized and six highly attended employment fairs were held. Students benefitted from one-on-one meetings with JCT's job placement coordinators, which helped them to focus their job search as well as improve their interview skills. Forty-seven job placements were made directly through the Department and 206 positions were offered to JCT graduates as a result of the connections made by the dedicated job placement coordinators.

Keeping up with the Kodesh

As JCT continues to advance in the technology and science fields, it remains true to its goal of combining Torah and science. JCT students and graduates spend Shabbatot with Beit Midrash rabbis and participate in thought-provoking evening *shiurim* and Torah lectures. A "Torah and Science" conference and a Torah journal produced by JCT's Atuda (combining an academic degree with army service) students attest to the synthesis of these fields. JCT's female students and graduates participate in a variety of Torah learning activities and all conferences, workshops and employment fairs open with a Dvar Torah.

Special activities are also held which reflect and strengthen the students' diverse traditions. This is clearly seen in the EFE program in which heritage courses are taught by an Ethiopian rabbi and students celebrate the special Sigd holiday signifying the acceptance of the Torah.



Research 'Invisibility' tech builds safer antenna for IDF

A JCT professor uses the same principles and material that go into Harry Potter-style 'disappearing capes' to protect soldiers from radiation.

By David Shamah | July 21, 2014 | The Times of Israel

Off in the future, IDF soldiers may get the ultimate battlefield armor - a Harry Potter-style "invisibility cloak" that could let them cross a battlefield right under the noses of their enemies - without being detected. In the meantime, the goals for using technology like that are a bit lower - but still important.

Until those cloaks are ready for action, **Professor Michael Bank** of the Jerusalem College of Technology is using the "metamaterials" that could be used to build those invisible uniforms to protect soldiers in the field from electromagnetic radiation emitted by communications equipment. "It's true that metamaterials can be used for invisibility cloaks, and that's a project we may work on one day," Bank told The Times of Israel. "But for now, we are using it to keep radiation away from soldiers' heads and upper body."

Bank is one of Israel's senior experts on communications and electricity, and the radiation that results from both. An immigrant from Russia, Bank has numerous patents to his name, including one that allows electricity to flow through a single wire instead of the two that are generally needed, saving as much as 50% in power use and cost.

Bank also has done innovative work in the area of antennas - and it's those innovations that he is supplying to the IDF to help protect soldiers from radiation. "Units in the field always have at least one soldier who is required to carry a large communications unit, and they usually carry them on their shoulders or back, right next to their head," said Bank. "The systems





have large transmitters and emit a large amount of electromagnetic radiation, which many scientists believe are the cause of diseases such as cancer. We designed a new antenna that keeps the radiation away from the heads of soldiers, without compromising the range or performance of the transmitter."

Bank's invention uses a metal deflector to keep radiation away from the head of the soldier carrying the communications gear. "The deflector is in the shape of a small satellite dish, which goes between the soldier and the antenna. The deflector is designed in such a manner that it "pushes" the electromagnetic waves in the direction of the curve of the dish, away from the head of the soldier." The IDF has approved the system and has begun installing it on an experimental basis with some field units in anticipation of a wider rollout during the coming year.

While researchers are unsure if there is a connection between electromagnetic waves and cancer - there is evidence for and against - Bank said that keeping the waves away from soldiers certainly couldn't hurt. "Considering that this device is cheap and easy to install, there's no reason not to use it," he said.

The IDF deflector is based on a smaller version Bank helped develop for cellphones, which he and several of his partners shopped around to cellphone manufacturers. "But they weren't too interested," Bank said. "They told us that they had their designs and that no one was complaining about this, so there was no need for them to use this. I guess if people were to make noise, they might change their minds," he added. The deflector is only one of Bank's antenna projects. "We also came up with the idea of putting the antenna on the leg of a soldier, on the theory that the lower body is less susceptible to potential damage from electromagnetic radiation than the upper body." Here, too, Bank and his fellow JCT researchers aimed to come up with a system that would keep radiation away from the body.

That's when they discovered metamaterials - engineered materials that are micro-designed in a manner that results in a specific behavior. Depending on how the components - usually metal threads - are arranged, the materials can deflect radiation, sound, and even

light. The materials are precisely constructed based on complicated principles of physics and mathematics, but once a metamaterial "recipe" is created, it can be mass-produced.

Combining the principles of metamaterials with the research he's done on antennas, Bank came up with an interesting concept - the creation of a "leg antenna" that would consist of a sleeve that goes around a soldier's thigh, containing a small external antenna, radiating electromagnetic waves away from the soldier. "It sounds complicated but it's actually simple in principle," said Bank. "When you have a rod antenna, all the electromagnetic activity is outside the antenna; if there is space inside the rod, as many telescoping antennas have, you won't find activity there."

Again, following principles of physics, the "inside field" keeps all radiation outside the interior of the antenna. With metamaterials, the "inside field" - in this case, the soldier's leg - does not absorb the radiation associated with the communications system, either. The leg antenna is still in development, and Bank is set to discuss the idea with IDF brass in the coming weeks – "that is, if they are available, not a sure bet, considering the war," Bank noted.

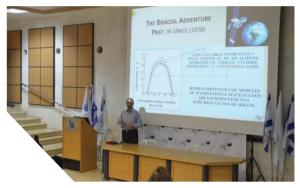
Though metamaterials have been around for about 15 years, they are still largely experimental - so if it is adopted, the leg antenna would be one of the first commercial applications of the materials. Metamaterials made news a few years ago, when they were used for their light-deflecting qualities to create an "invisibility cloak" that made an object in plain sight disappear. As in the Harry Potter movies, where the young wizard dons a cloak that makes his body disappear, metamaterials could be used to enable IDF soldiers to roam the streets of Gaza undetected as they search for terrorists. The US Army is already working on an experimental metamaterial cloak project, according to reports.

So is such cloak on the way for Israeli soldiers? Maybe, said Bank, but probably not anytime soon. "I've seen this technology, but I haven't tried to work on it yet," said Bank. "We may try it, but the truth is that I have a lot of research going on, so I may not get to it for a while."

Campus Updates

Let the Sun Shine -International Energy Agency Conference

Close to 40 representatives of the International Energy Agency Photovoltaic Power Systems Program (IEA PVPS) attended a Solar Energy Conference at JCT. Sponsored by the Ministry of Infrastructure, Energy and Water, the conference focused on emerging solar energy systems technology. **Prof. Naftali Eisenberg**, Director of JCT's Research Center for Optics and Photovoltaic Solar Energy and founder and VP of Technologies at B-Solar was a featured speaker.



Trading Room Opens at Campus Tal

A trading room where students learn to manage investment portfolios of up to one million dollars and gain hands-on experience in the field was opened at Campus Tal. The room was established, and is managed by, representatives of **PAGI (Poali Agudat Israel) Bank**, which, inter alia, provides the students with funds for investment and gives them access to the Bank's transaction management system.

A similar trading room at Campus Lev has been successfully operating for over two years, with excellent returns.



21st Annual Torah and Science Conference

Israel's foremost conference on Torah and Science, now in its 21st year, was held at JCT in partnership with Bar Ilan University and Yeshiva University. The Conference explored Torah and scientific knowledge in different fields ranging from earth science to sociology to humanities, and the effect on day-to-day life.

Four parallel sessions were held with over 24 lectures on topics such as food in Halacha, applying Halacha today, history, Jewish philosophy, mathematics, study and management. Publications by leading researchers in the field were also presented.

The conference culminated in the presentation of the Lev Award to Nobel Prize Laureate **Prof. Yisrael Aumann**. This award is given every three years in memory of **Prof. Ze'ev Lev**, z"l, the visionary founder of JCT.



Prof. Aumann (right) receives the Lev Award from Prof. Noah Dana-Picard, President Emeritus of JCT

First Physics Olympics for Religious High Schools

JCT hosted the first Physics Olympics for Religious High Schools in conjunction with Israel's Ministry of Education. Over 300 outstanding 12th graders participated in the competition, where they were challenged on the complexities of dynamics, kinematics, gravity and mechanical energy.

Eighty-five students (57 boys and 28 girls) reached the finals, which were held at JCT's Lev and Tal campuses. As part of the event, contestants and their families participated in a Science Day sponsored by JCT.



Left to Right: Bioinformatics Faculty Coordinator Dr. Sarah Ganot, first place winner from Tal Campus Elisheva Shirota and Head of the Physics Faculty Dr. Yoel Arieli

The Olympics was supervised by the Head of JCT-Lev Academic Center's Department for Electronic Engineering, **Dr. Evgeni Frishman**. First place winners **Matan Ben-Dov** and **Elisheva Shirota** received a full year scholarship to JCT, and the two second-place winners were awarded half year scholarships.



Left to Right: Head of Electronic Engineering Faculty Dr. Evgeni Frishman, Rector Menachem Steiner and first place winner from Campus Lev Matan Ben-Dov

Nursing Department Receives New Clinical Simulation Laboratory

Dolls are no longer only for little children. Now JCT nursing students can put theory into practice at the newly expanded clinical simulation laboratory. The laboratory includes life-size dolls with high tech features that give future nurses the chance to practice different physical examinations, perform procedures such as bloodletting and intubation, diagnose mock health problems and communicate with patients. The center is available to students all year round and is a critical part of strengthening their skills as they prepare for their clinical internships.



Computer Lab Dedicated by Keren Hayesod

A computer laboratory was recently dedicated in the name of generous Keren Hayesod donors **Max and David Abadi** from Colombia. The newly refurbished laboratory provides students with state-of-theart computers in comfortable surroundings, and will significantly enhance their research and study capabilities.

The dedication ceremony included the representative of the Abadi family **Aliza Calderaru**, President of Keren Hayesod in Colombia **Victor Hamri** and his wife **Henrietta**, Deputy Director of Keren Hayesod **Shaul Ravid** and other guests from Colombia.



Representatives of the Abadi family and Keren Hayesod, students of JCT and President Prof. Chaim Sukenik in the Max and David Abadi Computer Laboratory

The Israeli Friends of the Jerusalem College of Technology would like to express their sincere thanks to Stuart Dove, who is retiring from his position as Chairman of the Board after 25 years of dedicated service. Stuart has played a major role in bringing JCT to the internationally renowned academic center it is today. The Friends welcome David Leichner, the new Chairman of the Board, and wish him much success in his new position.

Students and Graduates

JCT welcomes incoming Rector Prof. Kenneth Hochberg who will be taking up his new position in October. Prof. Hochberg received his Ph.D. from the Courant Institute of Mathematical Sciences at New York University in 1976. After completing a two-year postdoctoral position at Carleton University in Canada, he was a faculty member at Case Western Reserve University in the United States, where he remained until 1986, when he was named a Fulbright Senior Scholar by the U.S. State Department. He then joined the Department of Mathematics and Computer Science at Bar-Ilan University in Israel, where he was promoted to the rank of full professor in 1995. Prof. Hochberg's research interests lie in the areas of probability and stochastic processes, both theoretical and applied.

We would like to take this opportunity to thank Prof. Menachem Steiner for his many years of service to JCT and especially as rector for the past eleven years. During this period he oversaw the expansion into new academic areas such as Nursing and the introduction of MA and MSc programs.

Record Number of Graduates

Mazal Tov to the 693 students - 278 men and 415 women - who received their bachelor's degrees and to the 77 students who received their master's degrees this past academic year.

Among the graduates were seven students from the Ethiopians for Education (EFE) program, 171 Haredi students (39 men and 132 women) and new immigrants from all over the world.

Haredi student **Eli Ashkenazi**, who arrived at JCT with limited knowledge of mathematics and English, and low matriculation scores, received an award for excellence in electro-optics/ physics. This attests to the power of JCT's program to help Haredi students bridge educational and social gaps, and to the students' ability and determination to succeed.





Left to Right: Graduate, Bioinformatics Faculty Coordinator Sarah Ganot, Head of Industrial Engineering and Management Faculty Prof. Alan Stulman, Rector Menachem Steiner

Student Day 2014 - A Night of Comedy and Magic

All work and no play can easily define JCT's intense students. But the Student Union works to ensure that student activities on campus give everyone a much needed break.

Student Day 2014 featured popular comedian **Uri Hizkiya** and illusionist **Nir Haimovich**. A variety of all day and evening activities included a zip-line, a mechanical bull, inflatables, a book fair and food and clothing stands. "The crowd was great. It's been a while since I've had this much fun," said Hizkiya after his performance.

Dean of Students Rabbi Michael Sultan praised the





Student Union for their activities throughout the year and Student Union Chairman **Razi Ben-Zion** awarded certificates of recognition for outstanding social

First Pesach Event for JCT Alumni

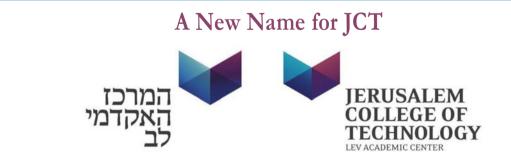


Over 1,200 parents and children participated in JCT's first alumni Passover event sponsored and hosted

by Attorney **Sandford Colb**, Chairman of JCT's Board of Trustees. The event was held on Colb's farm near Rechovot where participants enjoyed picking vegetables and fruits. The produce they picked was donated to nutritionally insecure families through Leket, Israel's largest food rescue network.

The Event created a feeling of connectedness among JCT alumni and their families and laid the foundation for creating an important professional network. JCT looks forward to hosting additional alumni events.





JCT has recently implemented the results of an exciting rebranding process, changing its logo as well as its Hebrew name to "Hamercaz HaAcademi Lev" (The Lev Academic Center). The English name remains the Jerusalem College of Technology; however the name "Lev Academic Center" has been added in recognition of JCT's founder Professor Ze'ev Lev. It is hoped that the new name will increase the college's standing and name recognition throughout Israel.

Innovations

A Pocket Printer - the Newest Innovation from JCT

Two young JCT entrepreneurs have developed a groundbreaking pocket-size mobile printer that can print on any size paper. **Tuvia Elbaum** and **Matan Caspi**, students in the Friedberg Program for Entrepreneurial Excellence at JCT, created ZUtA Labs and succeeded to raise over \$500,000 in seed funding and land at the top of Forbes' list of 25 Hot Israeli Tech Startups. Support came from high tech giants such as **Steve Wozniak**, Apple co-founder.



ZUtA Labs founders (from left to right) Matan Caspi and Tuvia Elbaum with Co-Founder of Apple Computers Steve Wozniak

The mini-printer idea came to Elbaum and Caspi when they realized that there was no device for printing onthe-go. The Friedberg Program provided guidance, workshops and funding, and helped the two students to turn their concept into a product.

The printer is essentially a robot with an ink head on wheels. It is 10cm x 11.5cm and weighs in at 300 grams. The first printers are expected to be released in early 2015 and sold for approximately \$240.

In late July the ZUtA Labs team won first place in the national Creative Business Cup Competition. This landed them a spot in the global competition in Denmark,

where they will be competing against representatives from 40 countries for the title of World's Most Creative Entrepreneur.

New Accelerator Program to Open at JCT

On November 1st, JCT will renew its long tradition of entrepreneurship and innovation by launching a new accelerator program, *Yazam Balev*.

Yazam Balev will be the first accelerator in Jerusalem targeted to meet the special needs of the Orthodox and Haredi communities. The accelerator will help young entrepreneurs develop their ideas into prototypes and companies that will be more likely to attract potential investors and strategic partners.

JCT is the optimal place for the creation of such a model as it is the foremost institution for educating Haredim in the hi-tech field, promoting strong technological and research capabilities and resources, and is undoubtedly the place in which they feel most comfortable and at ease.

Yazam Balev will complement the existing Friedberg Program for Entrepreneurial Excellence, an accelerator program which was founded to develop JCT's student projects. Since its inception 18 months ago, more than 100 project proposals have been submitted by students. Ten projects have been accepted and are in various stages of development.

Life and Money Saving Models from Department of Industrial Engineering and Management

For their final projects Industrial Engineering and Management students developed exciting new models for the medical field, the Israeli Air Force (IAF) and the Jerusalem Police Department which have the potential to save thousands of lives and tens of thousands of dollars.



stations in Jerusalem and improved the existing parameters. Following the evaluation, the students updated the system and advanced the user interface.

New Development to Detect and Stop Household Leaks

Two JCT computer science graduates have developed ANTILEAKS, a device that is able to detect household plumbing leaks and save Israel's consumer market an estimated \$250 million dollars annually.

Gal Oren and Neriah Staru, well aware of the threat of Israel's ongoing water shortage, the need to conserve every drop of water and reduce skyrocketing water bills, thought of the idea while working on their final undergraduate degree project. ANTILEAKS includes a camera that monitors the analog water clock and software that turns the information to digital data. A unique algorithm detects abnormal flow and leakage and sends an alert to the user's mobile phone.

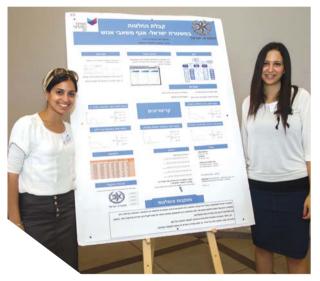
ANTILEAKS has achieved impressive results in international competitions and Oren and Staru will soon offer a remote control add-on to turn the water flow off.



MK Naftali Bennett (center) examines ANTILEAK with JCT graduate developers Gal Oren and Neriah Staru

Students developed more efficient models for Magen David Adom (MDA) to manage its on-call staff and redistribute its ambulances to ensure that every destination is reached in less than eight minutes, and that stations located in high-risk areas have sufficient ambulances to answer all calls.

In the medical field, students developed a model to optimize medical equipment storage, including expired equipment, which will significantly reduce expenses and maximize limited space.



Left to Right: Livnat Eldar and Mor Cohen and their model for the Jerusalem Police Department

At Shaarei Zedek Medical Center's IVF unit students created a model to reduce errors, minimize time between procedures and improve quality of care.

In cooperation with the Israeli Air Force (IAF) students were asked to analyze the technician conveyance in order to decrease running time. Students discovered that standby time was the main cause of delay. They developed a time optimization model which can be implemented immediately and will significantly streamline the process.

At the Jerusalem Police Department students analyzed the decision-making information system, examined the performance of police stations, compared various Jerusalem College of Technology

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To all our students, staff and graduates who were called up to defend our homeland, we pray that you all return home safe and sound.

In recognition of their brave service in the defense of Israel, all students who have been in combat roles in the current operation will receive a special JCT scholarship.

If you would like to contribute to the Combat Scholarship Fund please contact one of the offices below.

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In Memorium

The faculty, staff and students of the Jerusalem College of Technology - Lev Academic Center mourn the loss of a great benefactor and man of vision **Conrad Morris 5"t** who has supported the College since its earliest days. Conrad was one of the founders of the British Friends of JCT, and for many years served as Trustee of the British Friends.

Conrad, through the SodaClub Venture fund, was instrumental in encouraging student entrepreneurship, by enabling JCT students to develop their innovative ideas toward possible commercialization. In 2001 he was made an Honorary Fellow of JCT, in recognition of his continuous support of JCT and his holding to the highest standards of Jewish business ethics.

We also mourn the loss of **Edward Low 5**", a longstanding supporter of the College and member of the board of the American Friends of JCT. Together with his wife Hannah and family, he took great pride in the achievements of his cousin Willy Low (Prof. Ze'ev Lev). In 2001 the Low Family Building of Applied Physics was dedicated on Campus Lev.

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