מכון טכנולוגי חולון
Holon Institute of Technology

CONTENT

HIT The Holon Institute of Technology is a dynamic and leading Israeli academic institution.

For the last 50 years, HIT has been forming students to face the technological challenges of the 21st century. As president of this Institute, I take great pride in our alumni who occupy key positions in the high tech sector, the design industry, are at the forefront of science via basic and applied research, and contribute each one in their own way to the success of the Israeli economy.

HIT encourages excellence among its academic staff and students. Cutting edge centers and laboratories promote innovative research and benefit both our researchers and our students who collaborate with businesses and industries. We work relentlessly at strengthening our bounds with the industry and these important collaborations reflected in all our academic programs.

In the last couple of years, HIT has been particularly active in the international arena. In this relatively short period, we have managed to move to the forefront of the international academic scene and today, I am delighted to count more than 70 active international academic partnerships with leading institutions.

HIT is also committed to the promotion of women in the academia and gender equality in general. In line with the idea of equality, HIT is committed to make the academia more accessible to the minority segments of the Israeli society (ultra-orthodox Jews, Druze, Arabs, Ethiopians, immigrants, and other communities).

As a result, HIT plans on expending its infrastructures, building new classrooms, conference halls, labs, research centers and dormitories.

We are committed to your success for your achievements are HIT's pride.

Come fulfill yourself and enjoy your studies!

Prof. Eduard Yakubov
President

The City of Holon

Located on the southeastern border of Tel Aviv, Holon is a central city of over 200,000 people. Once known primarily for its large industrial zone, it has reinvented itself as a culture and design center and children's paradise, offering its residents a high quality of life. In 2010, its long-time Mayor, Moti Sasson was named by Britain's Monocle magazine one of the 10 "freshest movers and shakers in urban politics worldwide".

Thanks to the extensive work of the city council of Holon in the fields of education, culture and leisure, the city of Holon is now recognised nationally as a city of culture and education, which features unique institutions such as the Children's Museum, Médiathèque, Museum of Design, Story Gardens and more.

For further information: http://www.holon.muni.il/English

Distance
Holon←→Tel Aviv
7 km

Distance
Holon ←→Jerusalem
50 km

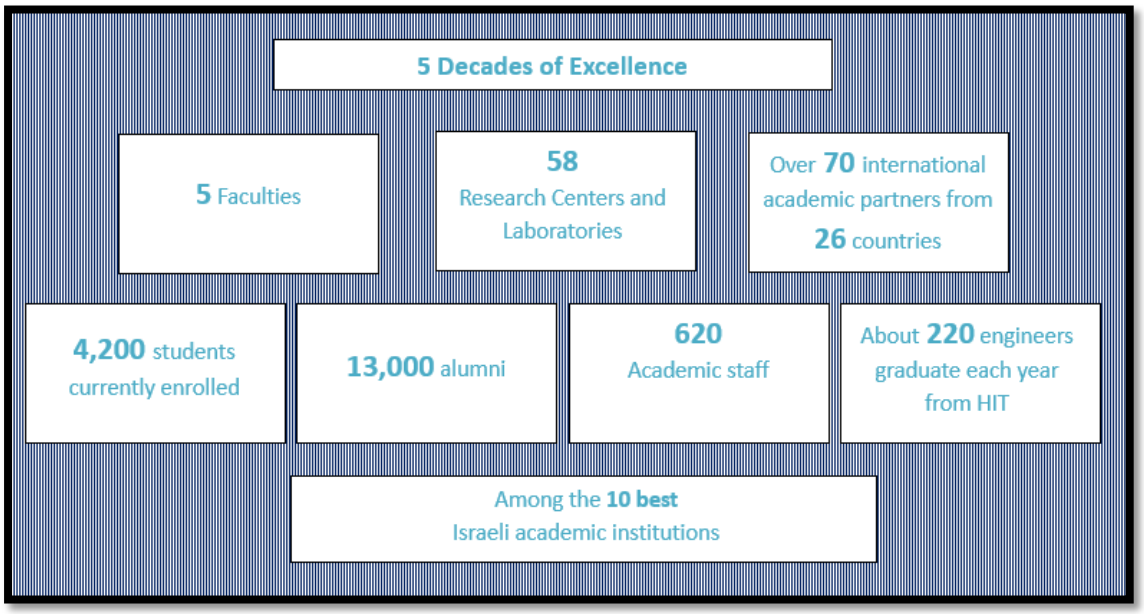
ABOUT

HIT The Holon Institute of Technology is an academic institution of higher education, established in 1969. The HIT was part of the Tel Aviv University, and became an independent public academic institution of higher education in 1999.

HIT trains the next generation of scientists, engineers, designers and technology managers. **Fully accredited by the Israeli Council for Higher Education** (CHE), it is entitled to grant undergraduate (Bachelor) and graduate (Master) degrees.

HIT's academic body is composed of professional and experienced lecturers and researchers. These nurture tight connections with the industry, develop innovative teaching technologies and are extensively involved in the community. These vast collaborations were embedded in up-to-date course materials and workshops. Industrials give lectures and tutor HIT's students. Research topics and final projects done in countless fields (energy, nano-technology and nano-materials, cyber, design, data mining, data analysis, and more). In addition, HIT is equipped with theoretical and applied research facilities among which some unconventional and forward-thinking labs and multidisciplinary centers.
Results of both in-house work and collaborations – whether among our faculties, international collaborations, collaborations via institutional multidisciplinary and national task forces or collaborations within the academic world and with the industry- we successfully provide our students with **multidisciplinary knowledge** and **original analytical thinking**, and encourage and cultivate **excellence**.

HIT in numbers



Vision

- Remain an outstanding and multidisciplinary academic institution with a scientific, technological and design orientation.
- Remain a leading academic institution thriving towards the development and advancement of the Hi-Tech industry.
- Invest in Israel's future applied scientists, engineers, designers, technology experts and managers, providing these latter with up-to-date knowledge, social values and responsibilities.
- Become a leading Israeli academic partner to worldwide academic institutions and word excellent industries.
- Have a positive impact on the academic environment in Israel and abroad.

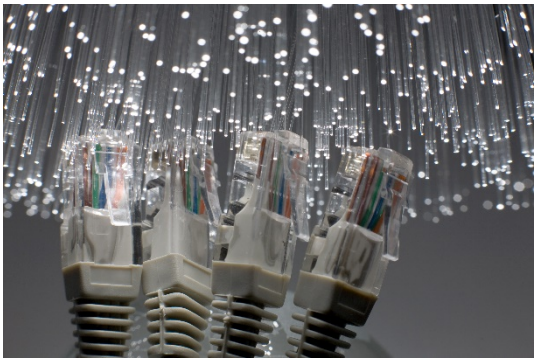
Mission

- Remain a leading innovative and state-of-the-art academic institution.
- Preserve HIT's unique character that combines dynamic academic education alongside applied R&D in partnership with the industry and society as a whole.
- Develop and establish applied research infrastructures for the benefit of groundbreaking technological developments.
- Play a significant role in making academic education, associate degree studies, training and enrichment courses tailored to the needs of the Israeli industry and community.

Goals

- Ensure our innovative and dynamic academic programs meet the needs of the industry and society.
- Keep on promoting academic excellence, social responsibility and gender equality.
- Develop new academic and business partnerships in Israel and abroad.
- Develop joint academic programs and joint R&D initiatives.
- Establish new innovative research centers for multidisciplinary applied research, addressing technological and societal challenges.
- Leverage HIT’s contribution to the Israeli society by making higher education more accessible to all segments of society.

Faculties



Faculty of Engineering

The Faculty of Engineering is **HIT's largest faculty**. It offers **one of Israel's most sought after academic curriculum** in the field; with **about 220 graduate students in electrical and electronics engineering each year**. In addition, it is among the leading R&D centers in Israel in the field of Renewable Energies. As such, its graduates successfully integrate the marketplace and contribute to the advancement of the State of Israel as a leading technological power.

In 2017, Israel's Council for Higher Education stated in a report:
"*It is clear that this syllabus has been developed in the spirit of a university model. Students engage in learning and are able to select their courses so that they can fulfill their own personal goals."*

The Israeli high-tech industry is a global superpower in numerous fields such as: electrical engineering, electronics and communication, electro-optics (El-Op), military and civilian communication systems (Elisra and Tadiran), communication networks (ECI), standard and designated processors (Intel, Motorola Semiconductors, Tower), printing and printing preparation (Creo/Saitex, Kodak/Indigo, HP), command systems, control and aeronautics (IAI, Elbit Systems, Orbotech) and various medical systems (ESC, Cadent, Givens).
In order to maintain a quality advantage in these fields, the Faculty of Engineering constantly updates and adapts its academic curriculum and training of its future engineers.

B.Sc. Electrical and Electronics Engineering

(4 year-program)

7 majors:

- **Power Systems and Alternative Energy (Integrated)**
  Courses include energy conversion, electric drives, power systems, electronic power systems and high voltage techniques. They can be combined with courses in the field of alternative energy.

*This academic curriculum **answers the requirements of the Registrar of Engineers**. Graduates can thus apply for the **electrician license of the Ministry of Labor**.*

- **Communication Engineering**
  Courses include analog and digital communications, computer communications, cellular communications, radio communications, optical communications, signal and image processing, radar and antennas, and a wide selection of elective courses and advanced laboratories.

HIT is one of the few institutions offering Communications Engineering studies at the bachelor level.

- **Microelectronics and nanoelectronics**
  Courses include nanotechnology, electronic devices, microelectronics technologies, thin layer technology, biomedical sensors, and laboratories.

- **Electro-optics and image processing**
  Courses includes classical optics, modern optics and selected subjects in signal and image processing combined with laboratories.

- **Bio-Engineering**
  Courses include background in anatomy, physiology, elective courses in the field of physiological signal processing, neuro prosthesis and laboratories in medical devices and physiological signal processing.

HIT has established a center of excellence in this field for both research and teaching purposes.

- **Control and robotics**
  Courses include advanced control, modern control, linear control and robotics, basic control laboratory and advanced laboratory for control.

- **Embedded systems**
  Courses include: algorithms and data structures, real-time operating systems, hardware design using VHDL, characterization of embedded systems, computer vision, introduction to computer architecture, and more.

M.Sc. Electrical and Electronics Engineering

(2- Year program - without thesis)

Target audience: scientists, researchers and technology leaders who seek to deepen their knowledge in a specific field of electrical engineering and wish to follow up on the new developments in the industry.
Curriculum includes mandatory courses, elective courses, departmental seminars and a final project.

5 majors:

- **Systems and Electronics Power** (high current)
  Courses include extensive theoretical background, planning of domestic and industrial electricity networks, work in advanced electrical laboratories, and collaborations with the Industry.

- **Electro-optics and image processing**
  Courses include diagnostic and medical imaging, fiber-optic communication, digital cameras and a long list of advanced fields.

- **Communication Engineering**
  Courses include analog and digital communications, satellite communications, optical technology and radio technology.

- **Micro and nanotechnologies**
  Courses focus development and construction of materials and structures with molecular and atomic precision in extremely tiny dimensions (Nano-milliseconds) that enables the development of new materials and applications that extend the limits of the possible.

- **Micro and Nano Electronics**
  Courses focus: combination between microelectronics technologies, thin layer technology and devices based on nanotechnology and Nano-photonics.

Teaching and research laboratories

The Faculty of Engineering operates 30 teaching and research laboratories as well as several excellence centers in collaboration with either partner academic institutions or industry companies / start-ups. Among these:

High Voltage Techniques	Microwave	Antennas
Basic Communication	Digital Communication	Photonics processing
Power Electronics Systems	Energy Transfer	Micro-electronics
Electro-optics	Advanced Control	Microprocessors
RF	Medical Equipment	Digital Signal & Image Processing

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Faculty of Science

HIT's **Faculty of Science** is unique in that it combines a broad theoretical base with practical experience.

The Faculty of Science is committed to excellence in teaching, research, development and discovery, and to nurturing professional relationships with the industry in order to understand the problems it faces and find suitable solutions. The Faculty divided into three departments, the **Department of Computer Science**, the **Department of Applied Mathematics** and the **Department of Physics**. All three departments have several applied research centers and regularly hold colloquiums and seminars.

Department of Computer Science

B.Sc. in Computer Science

(3 year-program)

The field of Computer Science is one of the driving forces of technological advances. Empowered computer scientists constantly reshape our environment and the world we live in. This degree encourages students to develop their research skills; it fosters curiosity, promotes independent study and prompts students to integrate into a reality of rapid technological changes.

Courses include algorithmic, problem solving, programming and analysis of algorithms, understanding of computer structure and operations, programming languages, and computer science applications in various areas.

Knowledge acquired upon graduation: analytical and research skills, knowledge of the structures underlying software, greater creative talents in the design of new systems, autonomous learning of new subject-matter, understanding of the principles underlying program and system development, practical aspects of software and hardware development.

Work perspectives: software and computer algorithms expert for R&D posts in high-tech companies and advanced industries.

Department of Applied Mathematics

B.Sc. in Applied Mathematics

(3 year-program)

HIT's B.Sc. in Applied Mathematics established over ten years ago by an international team of applied mathematicians from both the academia and the industry. **Highly praised by the Israeli Council for Higher Education**, this degree immediately granted a complete and permanent accreditation. Today, the Department of Applied Mathematics at HIT gathers a team of fourteen **Israeli and international researchers** that deals with both research and teaching. Their domains of research cover mathematical physics, complex analysis, dynamical systems and control, computer vision, machine learning, graph theory and applications, and mathematical biology. The academic program provides the students with a strong mathematical background and a clear applied orientation.

2 majors:

- **Data science**
  Courses include statistics, machine learning, and sequential models in data science, deep learning, and time series.

- **Multimedia**
  Courses include image processing, computer vision, 3D reconstruction, speech processing and recognition.

Why a B.Sc. in Applied Mathematics? Many of the utmost advanced technologies integrate a strong mathematical component. Implemented with miscellaneous programming languages, these plugged into complex systems. This scheme is found in numerous applications: face recognition, motion detection, surveillance, three-dimensional reconstruction, cryptography, data analysis, security, computer-assisted surgery and many others. The role of an applied mathematician in a technology developing organization (private company, government agency, army, etc.) can be divided into four phases:

- finding the right mathematical description of a given practical problem (modeling stage)
- analysing this mathematical model in order to understand its properties and limitations
- designing a computer algorithm that can concretely compute the desired entity
- implementing this algorithm in some programming language

Therefore, **applied mathematicians are major actors in technology development**.

Work perspectives: most graduates integrate the Israeli high-tech industry in companies such as Intel, Samsung, Elbit Systems or Israel Aircraft Industry. Some of them work in financial institutions. A few decide to leverage their acknowledge and pursue their studies toward a Master and a Ph.D. in prestigious institutions like Tel-Aviv University, the Technion in Haifa, the University of Haifa or the Open University.

Applied Mathematician** vs. **Engineer** vs. **Computer Scientist

The applied mathematician has a broader mathematical background than the engineer has and has a programming capability similar to the computer scientist. The applied mathematician has the fitting skills for integrating in a holistic view mathematical modeling, algorithm design and programming. On the other hand, hardware, in its various forms (electronics, computer networks, operating systems...) is not fully in the realm of the applied mathematician.

Active Collaborations

Bar-Ilan University
Tel Aviv, Israel
Technion
Haifa, Israel
Institute of Mathematics
Kiev, Ukraine
Institute of Applied Mathematics and Mechanics
Slavyansk, Ukraine
Università degli Studi di Padova, Italy
Tohoku University,
Sendai, Japan
École des Mines de Paris
Paris, France
Institute Henri Poincaré
Paris, France
École Polytechnique
Paris, France
Centre National de la Recherché Scientifique (CNRS), France

Department of Physics

***No B.Sc. or M.Sc. in Physics offered**

Physics is the basis of all sciences and knowledge in the field is necessary to understand both fundamental science and applied science. The Department of Physics at HIT emphasizes the field of applied physics as it trains engineering physicists (engineers with a solid background in basic science). This department is responsible for the **teaching of all physics courses at HIT** both at the B.Sc. level and at the M.Sc. level. Physics classes a delivered to students mainly from the Faculties of Engineering and Technology Management who have access to laboratories.

Courses include advanced course on theoretical quantum mechanics, theory of Nano-photonics, Nano-particles, etc.

Department Academic Staff: the Department of Physics counts six faculty members, about ten researchers, and laboratory instructors involved in both academic teaching and theoretical and applied research.

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Faculty of Design

The Industrial Design program opened in 1975. At the Institute, the field developed at a rapid pace and in 1978, the Department of Industrial Design was established. In the early 1980s, majors in Interior Design and Visual Communications Design became an integral part of the Faculty of Design. In 1988, a School of Design and Art established within the framework of the Institute. Certified by the Israeli Council for Higher Education, it officially became entitled to grant B.Design degrees in the Department of Interior Design, the Department of Visual Communications Design and the Department of Industrial Design. In 2015, the Faculty of Design celebrated its **40 years of existence**.

Since its establishment, the Faculty of Design aims at training designers using a multi-disciplinary academic, creative and professional approach. Design considered a continuum of analytical and intellectual activities, requiring the capacity for process analysis, the understanding of conditions and influences, and for forging abstract ties. Today HIT's Faculty of Design considered **one of most dynamic, vibrant and leading design schools in Israel and in the world**. Together with academic studies, the Design Faculty organizes, provides and supports community service run by the students so that they **contribute to society** and gain values via their commitments. Students, graduates and members of (the teaching) staff participate in **competitions and exhibits in Israel and abroad.**

The Faculty of Design initiates unique projects and develops ties through work and research with industrial plants, local authorities, and public entities, in order to expose students and provide them with practical experience in diverse fields at the beginning of their studies. In addition, the Faculty of Design works in close collaborations with the other Faculties at HIT.

B.Design in Industrial Design

(4 year-program)

This program trains our graduates to cope with a large array of subjects and to plan diligently, fully and professionally in any field. The system being flexible enough, it enables self-expression. Secondary enrichment courses expose students to new and interesting areas. Beside the projects initiated by the department heads, students may work in close collaboration with local industry on a simulation exercise. The local industry provides immediate feedbacks based on the professional experience of the various parties, and students must cope with fairly realistic, external factors. Likewise, the presentations prepared during the courses provide opportunities for independent work and the development of a personal approach, beyond the obvious opportunity to work in-group.

Curriculum: the major courses are complex with minor courses in technology and the arts.

B.Design in Interior Design

(4 year-program)

This program stresses the importance of future designers' high level of awareness and involvement in society and culture as the Department of Interior Design sees its graduate as an agent of culture, creating and influencing the surrounding environment, through an emphasis on the following aspects:

- **Architectural thinking**: students must cope with the ideological-conceptual dimension of the architectural idea, by investigating the sources and the symbolic, philosophical and historic meanings.
- **Development of methodological awareness of the design process**: experience in project development provides students with the necessary base to acquire the professional and cognitive tools necessary to both develop their ideas and to communicate them.
- **Design project development**: imparting the professional ability to develop a project from the pragmatic demands, through architectural composition qualities, elaborated design of spaces, considerations, technical and material understanding.
    - **Sensitivity to environmental contexts**: Interior designs architects operate within a defined environmental and cultural context and must take into account various human factors such as collective and individual memory, aesthetic and ecological ramifications.
    - **Visual graphic skills**: the development of perceptualization of skills and the mastery of drawing, painting, sculpting, photography, sketching, model building and computerized imaging skills form the basis for the development and presentation of the architectural idea via the development of each artist's unique expressive tools.

B.Design in Visual Communications Design

(4 year-program)

This program rests on the following four major stages that take place in parallel to the development of the students into mature designers. This metaphorical super-structure supports the scope of the departmental curriculum.

- **Shape**: development of expressive skills, experience of creative thought processes and acquaintance with basic visual elements
- **Image**: familiarity with the cognitive, metaphorical, symbolic, cultural and ideological meanings of forms and investigation of the relationships between text and image
- **Language**: understanding the syntax of images and words as sequences that create new meanings, observing the micro and macro in the context of creating and applying a new visual language
- **Identity**: the delineation of the various components and their definition in visual language, rendering them into an entity of recognizable character, creating dialogue between the visual object and its environment.

Curriculum: the first two years are dedicated to fundamental unit courses and the last two years to major unit courses.

M.Design in Integrated Design

(2 year-program)

This program aims at better understanding and exploring design in broad, in-depth and very interesting ways. The curriculum combines theory of the design, study and research of social phenomena, economic, political and methodological thinking and development through design thinking.

Lecturers: designers, architects, sociologists, anthropologists, members of the New Media, economists and top scholars.

Workshops: computerized systems workshop, tool machining workshop, plastic workshop, carpentry workshop, metal workshop, soft materials, ceramics workshop, and more.

This program constitutes a multi-disciplinary challenge for most applicants. It is thus **intended as both B. Design student and students from other fields of expertise**.

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Faculty of Instructional Technologies

The Faculty of Instructional Technologies established in 2005 in response to the increasing role of Information and Communication Technologies (ICT) for Education and Corporate Training. The field of Instructional Technologies includes Learning Management Systems (LMS), multimedia systems, animation, social networks, computer and network games, interactive courseware, virtual and embedded reality and covers any technological means that facilitate the learning and the integration of knowledge and skills. Many such technologies developed and implemented by "early adopters" during the previous two decades, and are now widely available on the fast developing web.

This program integrates theoretical and practical knowledge with the aim of educating and training an academic professional workforce that will be able to design, implement and evaluate the far-reaching opportunities of ICT. To succeed in the fast-changing and unpredictable technology arena, graduates need highly developed life-long-learning skills and inclinations.

The Faculty of Instructional Technologies nurtures strong ties with the "industry", national organizations -such as the IDF and government offices, large communication groups, financial and high-tech companies, and private concerns.

Uniqueness: the bachelor and master programs focus on the field of corporate training for working adults, rather than on the educational school system.

Expertise: multidisciplinary, broad general knowledge and skills, identification of organizational learning or training requirements/needs, identification of matching solutions, ability to plan a technological implementation, design interactive interfaces, lead the product development and measure its effectiveness

B.A. in Instructional Technologies

(3 year-program)

The curriculum offers foundation courses covering wide theoretical knowledge related to learning, training and implementation skills for planning, designing and developing instructional technologies. This integrative syllabus covers three main domains:

- **Training development**: theories of Learning, Instruction and Adult training with special emphasis on the context of digital technologies
- **Digital technologies**: website design, interactive programming, data bases
- **Interactive multimedia:** visual and digital graphic design; design of user interface and user experience

M.A. in Instructional Technologies

(2 year-program – without thesis)

This **new degree** trains instructional technology experts and managers - mainly from the field of corporate training. It is intended for B.A. graduates in Instructional Technologies as well as graduates involved in the actual practice of corporate training and instructional technologies. This program increases student awareness of equity and ethics, cultivate sensitivity toward people with special needs, and provides graduates with tools to cater for such audiences in the field. Many final projects are community-related projects that provide solutions for people with sensory disabilities and children facing medical procedures.

Curriculum: strong emphasis on employability, team projects covering several theoretical and practical courses. The second year, students are evaluated on the planning, development, and implementation of their final project that must answer the instructional and training needs of a real client.

Work perspectives: over 400 graduates have found a position in a related field. Graduates hold key positions in leading organizations and play an active part in promoting digital content in information interface design, development and management of web-based training, organizational knowledge management, mobile applications development and design, website development and management, and computer games development. **Even sophomores are recruited for prestigious positions**.

Faculty staff

The Faculty is comprised of highly experienced academic researchers with considerable field experience in a variety of disciplines that enables them to teach the multidisciplinary curriculum. Faculty members have both a sound theoretical academic basis in their separated disciplines (e.g. psychology, sociology, graphic design, computer science, instructional design, natural sciences), as well as extensive practical experience in teaching and designing training in the public and private sectors.

The involvement of faculty members in the development of instructional technology has yielded numerous products that have been adopted by wide audiences – e.g. the sms-HIT application for online surveys and attaining consensus, or the Treasure-HIT location-based mobile learning application.

Members of the Faculty of Instructional Technologies regularly publish papers in academic journals and participate in academic conferences abroad. Moreover, strong ties have been established with several institutions of higher education in Europe and elsewhere.

The Faculty organizes a highly subscribed annual "Instructional Technologies" conference, hosting guest lecturers from different fields of expertise and presenting state-of-the-art innovations and applications.

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Faculty of Technology Management

HIT's Faculty of Technology Management is **unique** in Israel as it is the **first and only** academic institution in Israel to offer a Bachelor (B.Sc.) and a Master (M.Sc.) degree in this challenging field.

Established in 1994, the B.Sc. in Technology Management provides its graduates with the basic knowledge and expertise necessary to manage technologies. **In 2006, the M.Sc. in Technology Management** opened as a prolongation of the B.Sc. program. It welcomes graduates from the fields of engineering, sciences and economics who wish to expand their knowledge in the field of Technology Management. Both the undergraduate and the graduate programs were established to meet the increasing demand of the Israeli industry for professionals specializing in all aspects of management, including project management, information technology management, marketing, finance, human resources management and quality control.

B.Sc. Technology Management

(4 year-program)

More and more students seek to acquire managerial skills. The academic curriculum thus prepares them for managerial posts. The first two years are devoted to the study of mathematics, management, science, technology, economics and quantitative methods. The following two years students specialize in one of the following study tracks:

- Project Management
- Information Systems Management and Data Analytics

Work perspectives: the graduates will engage in projects management, professional team management, operation and logistics management, human resource management, marketing, planning, control and quality assurance in either technological firms, organizations, the industry or the service sector.

M.Sc. Technology Management

(3 year-program)

This program aims at broadening the horizons of graduates from the fields of engineering, sciences and economics. The program focuses on advanced management technologies, managerial characteristics of novel technological systems, financial and economic management of technological systems and innovative technologies in specific fields. The program is made up of eight mandatory courses and five elective courses.

Majors:

- Systems Engineering
- Quality Assurance and Reliability
- Information Technology (IT) Management

Students who do not wish to specialize in one of the above topic may choose from a variety of other courses. Completion of the Master studies is subject to the submission and validation of a final project based on the tools acquired during the degree.

Faculty Staff

The Faculty of Technology Management counts twenty-one faculty members. Technology Management being a multidisciplinary field, the research interests of the staff covers a broad range of topics including economics and finance, project management, evaluation of technology perspectives, operations research and information systems, decision sciences and analytics, with an eye toward practical application in the industry.

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Department of General Studies & English as a Foreign Language

The Department is responsible for the teaching of undergraduate General Studies and the teaching of English as a foreign language.

The General Studies Division

Undergraduate students at HIT are required to take a number of General Courses. **These courses are an important qualitative contribution to the shaping of professional personality.** They constitute an **additional educational component** that widens the students' academic horizons beyond their studies in their respective core academic disciplines and related sub-disciplines. Some courses also integrate social projects and community activity. Students are free to choose their General Studies curriculum. Yet, registration is on a first-come, first-served basis.

The team of active researchers lecturing at the Department of General Studies is known for its accessibility. It encourages an open dialogue that tolerates a variety of opinions and perceptions, and strives to create conditions for pragmatic and fruitful learning.

Purposes

- To provide students with in-depth knowledge and critical thinking skills in the fields of the humanities, social sciences, and human and environmental sciences
- To equip students with the tools necessary to conduct a critical dialogue
- To encourage students to take a stand on social and cultural issues and dilemmas

Study domains

- Social sciences and humanities classes to broaden one's intellectual horizons and acquire critical thinking
- Social responsibility classes that combine a theoretical component with community activity
- Environment and sustainability classes along a few selected subjects in human biology and genetics
- **Others**: Sociology, Anthropology, Biology, Economics, Gender Studies, General History, Area Studies, Culture Critique, Judaic Studies, Israel Studies, and History and Philosophy of Sciences

Curriculum

Two weekly-hour courses per semester granting two credit points each. Courses that integrate community activity include both a theoretical component and an applied component that together grant four-credit points. It is recommended to take only one such course per semester.

Scope of studies

- **Engineering**: 10 credit points
- **Technology Management**: 10 credit points
- **Design**: 8 credit points
- **Computer Sciences**: 8 credit points
- **Instructional Technologies**: 6 credit points
- **Applied Mathematics**: 6 credit points

English as a Foreign Language (EFL) Division

To provide students with advanced English language skills is essential for any professional career. As a result, the study of English aims at improving HIT's students' ability to read and analyse professional texts as well as improve their written skills. In this purpose, students benefit from both an experienced-team of English teachers and facilities that include a language-teaching laboratory equipped with advanced technological means.

By law, all recognized academic institutions in Israel must lead their undergraduate students to attain a high enough level of proficiency in English to be endorse by a course exemption.

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The Dean of Students Office

The Dean of Students Office at HIT offers assistance in the **non-academic** aspects of the learning process and runs a comprehensive program that provides support and assistance at both the personal and individual level. This assistance allows students to focus and succeed in their studies. Our skilled and professional team offers a warm and supportive environment to any students.

Scope of assistance

- scholarships (merit-based scholarships, need-based scholarships, and more)
- financial assistance
- participation in social projects
- career guidance (to all students and graduates)
- **Siftach Program** - assists graduates with disabilities that either need specific adaptation of the academic arena or are looking for a job.
- **Academic Accessibility Center** - support to students with learning disabilities and special needs (e.g. ADHD, hearing impairment, visual impairment, psychological challenges, etc.) via mentors who also help "special" populations (e.g. students in active military reserve service, female students during pregnancy and in maternity leave, students who are struggling with health and personal problems, etc.)

Services:
Educational assistance, study workshops, augmented-learning technologies, counseling and psychological services, suitable career guidance. Thanks to the collaboration between HIT and the National Insurance Institute, a system for acoustic accessibility, has been implemented in all our classrooms.

The Unit for Social Involvement

The Unit for Social Involvement works towards the advancement and development of programs involving students' participation in community projects and initiatives in order to strengthen the connection between HIT and the local community. Active students receive scholarships for their contribution.

"Tikvah Israelit in the Academia" program

Israel's President, Mr. Reuven Rivlin who considers the academic world as vital to the evolution of the Israeli human capital for it is the first place where young people from all parts of society gather under one roof, launched the "Tikvah Israelit in the Academia" program.

According to President Rivlin, *"the academy plays a crucial role in the shaping of the "new Israeli order", the image and future of the Israeli society as a whole, the Israeli economy and the State of Israel*."

This program seeks to open the academic world to all Israelis, especially to the Ultra-Orthodox and Arab communities. Since HIT joined the program in 2016, it has taken steps to become an increasingly more culturally competent and diverse academic institution.

The Career Center

HIT's Career Center collaborates with top companies (e.g. Israel Aerospace Industries, Applied Materials, Teva, Intel, CheckPoint and more) in order to help its students and graduates integrate leading industries. In addition, HIT actively seeks new collaborations with the industry and make sure that its graduates are integrated into positions that match their fields of study and expertise.

Services offered: redaction of CV, interview training, contract terms negotiation, characterization of the relevant fields of expertise, career management, and participation in workshops.

The "Siftach" Program

The "Siftach" program assists graduates with disabilities in their transition from the academia to the labor market, sourcing placements and tracking occupations. HIT' students and graduates benefit from the assistance of a mentor and a program coordinator who assist them in their quest for a job, make sure the position match their education and skill, and provide them the necessary support for a successful integration into the professional world.

The program was developed by the Joint Distribution Committee (JDC) Tevet Israel, in cooperation with the Israeli Ministry of Economy and Industry.

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Research centers and laboratories on campus

Multidisciplinary R&D Centers & Labs

DIGITAL HEALTH LABORATORY

Founded in collaboration with Clalit Health Services (the second largest HMO worldwide), it aims at using multidisciplinary approaches and advanced technologies to tackle global challenges in areas such as eHealth (electronic health), mHealth (mobile health), big medical data, clinical decision support tools, etc. The lab closely connected with Clalit Health Services Research Institute (CRI), which is one of the ten best research centers announced by the World Health Organization (WHO).

MADE (Multidisciplinary Assistive Design and Engineering Lab)

This lab aspires to propel wide-reaching academic and community activities focused on the creation of novel assistive solutions, fusing technology vigor with design sensibility. MADE strives to nurture a multidisciplinary force of students and young researchers to gain in-depth experience with assistive design and technologies.

CYBER CENTER

This research center conducts research both on the academic and applied levels, on topics such as forensics; reverse engineering; analysis of former cyber events; ongoing follow-up on cyber-attacks; organizations and groups and the spread of attack tools; building futuristic systems etc. The center addresses cyber challenges and solutions from a multidisciplinary approach, involving all faculties at HIT as well as regulatory organizations and cyber-related companies.

M^3IC CENTER (Multimodality, Multimedia, Man – Machine Interaction Center)

Focuses on communication technologies & practices in terms of textual, aural, linguistic, spatial, and visual resources or modes; It combines advanced algorithms, interdisciplinary user interface (UI) and user experience (UX) methodologies. M3IC collaborates with relevant industries such as: mobile communication, computing, IoT, biometrics, TV, automotive and robotics.

CARE (Center for Applied Technological Research and Development for the Elderly)

A leading international applied research center for devising innovative methodologies and technological solutions for the elderly population; CARE was founded in collaboration with Maccabi Health Services (the second largest HMO in Israel). It is a unique center where academia, healthcare providers, hi-tech industries and various services can combine forced to exchange knowledge and tackle predicaments related to the ageing population from a multidisciplinary perspective.

Interdisciplinary Centers & Labs

RENEWABLE ENERGIES AND SMART GRID CENTER

Established in 2011 following an initial investment of over 1 million NIS by the Israeli Office of the Chief Scientist (OCS), the center focuses on energy monitoring facilities in the fields of solar energy, wind, water, fuel cells, smart grid and smart meters.

NANOMATERIALS AND TRIBOLOGY CENTER

This Center is composed of two labs: the tribology lab and the lab for synthesis and investigation of nanomaterials. The tribology lab investigates interacting surfaces in relative motion and their associated design, friction, wear, and lubrication, considering the physics, chemistry, mechanics and materials of the interaction. It is involved in many national and international R&D activities. The lab for synthesis and investigation of nanomaterials deals with synthesizing the nanomaterials by solid-gas and high temperature processes. For example these nano-powders will be used, to reinforce polymers for UMV (Unmanned Vehicles) or in artificial human joints as well as for mechanical defects.

SAR (Specific Absorption Rate) LAB

A unique lab of its kind in Israel, it is capable of performing physical SAR measurements according to international standards. Since its establishment in 2008, it provides SAR measurement services to the local industry, IDF and others as a national infrastructure.

NON-INVASIVE BCI (Brain-Computer Interface) LAB

The lab focuses on devising novel mathematical models (e.g., tensor factorization), dynamic neural models, spatiotemporal analysing techniques and neurofeedback paradigms. The work aimed at detecting EEG activity patterns, which are highly correlated with motion primitives acquired throughout training on various motor tasks, for the development of novel, efficient non-invacive brain computer interfaces.

OPTO-ULSI LAB

This lab focuses on theoretical and experimental studies of modern photonic devices and structures such as spatial light modulators, optical sensors, diffractive optical elements, photovoltaic cells, plasmonic waveguides and resonators; it is equipped with optical tables, microscope probe, electro-optoelectronic devices and advanced software.

PHOTONICS LAB

This lab investigates and specializes in sub micrometric recording methods, photo deposition processes, optical elements and waveguides, image processing methods and more; It is equipped with high-quality microscopes, spectrometers, high-stability optical benches alongside powerful computers. Establishment in 1981, Lab has been the locus of some of the most thrilling research activities conducted at HIT.

The Research, Development and External Affairs Authority ("RDE Authority")

At its foundation in 2000, the Research, Development and External Relations Authority had set goal to transform HIT into a leading research institution. Twenty years later, HIT considered like one of Israel's leading technical colleges and was **ranked among the 10th best Israeli academic institutions**.

In the last few years, the RDE Authority has taken HIT one-step forward; singling out various research projects and raising the necessary funds needed for the research to be conducted. Such projects usually take place in collaboration with leading universities, research institutions and industries, whether located in Israel or abroad. Today, HIT boasts an **impressive record of winning prestigious research grants** in the fields of science, technology and design.

As part of our efforts to forge productive research collaborations between HIT researchers and foreign researchers / industries, we provide updated information on the following:

- HIT's cutting-edge labs and research centers
- Horizon 2020 projects launched
- Horizon 2020 building of strong consortium for future calls
- Erasmus+ mobility programs
- Erasmus+ capacity building programs
- BSF, GIF, COST, Marie Curie and other national and bi-national grants
- Joint projects with businesses and industries, including hi-tech incubators, accelerators and design companies
- Community projects
- Relevant conferences, symposiums and colloquiums

Vision: become a groundbreaking center of innovative technology, a trailblazer firmly established within the academic arena, leading to a real change in the industry, and aiming at quality and excellence in all of its activities.

Missions:
1. Promote excellence in academic research and entrepreneurship by encouraging both basic and applied research.
2. Advance HIT as a leading national player in the production and exchange of knowledge, through cross-fertilization with other research institutes and the industry.

Meeting point between the academy and the industry

HIT' study programs answer the market requirements while involving the industrial and high tech sectors. Its tight connections to the industry give students and graduates the opportunity to join the largest Israeli companies during and after their studies.

HIT organizes and hosts both seminars and lectures given by key figures of the industry in Israel and abroad who share their knowledge and experience with the students. Hence, there exists a strong social network.

Academic entrepreneurship

Crucial and essential, academic entrepreneurship is the precursor of creativity, inventiveness and innovation. Thanks to such collaborations with the industry, HIT's academic staff and students have the opportunity to build their own start-up and can collaborate on research projects. This academic entrepreneurship is supported by cutting-edge research carried out at HIT that often leads to the marketing of new technologies. HIT promotes technological and social development, as well as industrial innovation in order to address environment and societal needs**.**

Interactive laboratory

HIT interactive laboratory constitutes a unique convergence point for people, technology and design. It is a place of interactions combining learning and research, the objective of which is to foster the creation of new projects and events. In this academic and multidisciplinary laboratory (replica of the high-tech industry laboratories), students – from all disciplines- gain practical experience sharing their innovative and creative ideas, look for solutions to daily technological challenges, develop marketing concepts and work as entrepreneurs.

HIT's Technology Transfer Office - A.Y.Y.T

A.Y.Y.T is responsible for the **commercialization of know-how and inventions of the institute's researchers**. Through the development of innovative technologies and by partnering with industry and researchers, A.Y.Y.T brings valuable knowledge to the technological marketplace.

HIT's **added value** as an academic and research center lies in its ability to host under one roof the complete research process: from the initial stage of characterization of a product, through its instructional technologies development, via the creation of the product's

interface and its technology management that accompanies the entire project - all the way to its finalization.

A.Y.Y.T works closely with HIT researchers to identify the right commercial opportunities for their invention / innovation. In order to ensure successful technology transfer, A.Y.Y.T's experienced business team works in close collaboration with the researchers whose knowledge, contacts and technological understanding are important to the success of the commercialization process. In addition, researchers' steady involvement in the product development by the licensing partner is crucial to the development of the end-product.

Role of the Tech Transfer Office:

- Ensure adequate patent protection
- Provide business guidance and commercial assessment
- Identify appropriate partners for licensing and joint ventures
- Communicate new inventions and innovations
- Potential partners networking
- Contract negotiation
- Creation of start-up companies
- Secure R&D funding

International Office

The International Office at HIT is in charge of leveraging already existing partnerships, promoting new international academic partnerships, developing international academic programs and workshops, students exchanges, students and staff mobilities under the Erasmus+ program, as well as coordinating the visits on campus of foreign academics and researchers.

To this day, HIT has over 70 academic partners, from over 26 countries:
Austria: FH Salzburg, University of Innsbruck
Brazil: IED Sao Paulo, IED Rio de Janeiro
China: East China Normal University, Nantong University
Czech Republic: Brno University of Technology, Czech Technical University Prague
Estonia: Estonian Academy of Art
France: ESAD Orleans, ESAM Design, ESAG Penninghen, EFREI School of Engineering / ESIGETEL, EPF Ecole d'Ingenieur, Strate School of Design
Germany: Weibensee Academy of Art Berlin, Fachhochschule Dortmund, University of Duisburg-Essen, Folkwang University of Arts, Hfg-Gmund, The Design Factory International, Muthesius Univeristy Of Fine Arts and Design, TH Koln, HFT Stuttgart, Trier University of Applied Sciences, HTW Dresden, Dusseldorf University of Applied Sciences
Greece: Technological Education Institute of Crete, Aristotle University of Thessaloniki
Hungary: Moholy-Nagy University of Art and Design Budapest, University of Craft and Design
India: The National Institute of Design (Paldi, Ahmedabad), Srishti School of Art, Design and Technology (Bangalore), ITTB -Industrial Design Centre (Mumbai)
Italy: Politecnico di Milano, University of L'Aquila, Rome University of Fine Arts, IED Milan/Como/Cagliari/Florence, Rome/Turin/Venice
Latvia: Rīga Stradiņš University, University of Latvia
Lithuania: Lithuanian University of Health Sciences, Kauno Kolegija University of Applied Sciences
Mexico:Universidad Nacional Autonoma de Mexico (UNAM)
Poland: SWPS University of Social Sciences and Humanities, Academy of Fine Arts in Warsaw
Portugal: Universidade de Lisboa, Instituto Politecnico de Portalegre, University of Porto
Romania: The University of Architecture and Urbanism "Ion Mincu", the "Gheorghe Asachi" Technical University of Iasi
Russia: RUDN University
Spain: Centro Universitario de Diseno (BAU), Escola Superior de Disseny (ESDI), IED Barcelona, IED Madrid
Switzerland: University of Art and Design Lausanne (ECAL)
Taiwan: Shih Chien University
The Netherlands: Design Academy Eindhoven
Ukraine: Institute of Applied Mathematics and Mechanics, National Academy of Sciences of Ukraine
United Kingdom: King's College London, University of Coventry, University of Warwick, Digital Health Institute, University of Strathclyde, Oxford-Brooks University, Kent University
U.S.A.: Sinclair Community College (Dayton, Ohio)
Uzbekistan: National University of Uzbekistan, Inha University, Tashkent State Technical University

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