Academy that integrates practice

Academic year 2023-2024 | May 2023

Application for participation and funding for an academic programme

Academy that integrates

practice

in the academic year 2023-2024

Information

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Policies of the institution and visioning of the institutional svstem

We are proud to present you Holon Institute of Technology's HIT academic programme, based on the method of "integrating learning and practice", as part of the institute's five-year planning programme for 2021-2025 and the institution's policy to develop multi-year programmes that combine academic classes and practical training with a wide range of industry representatives. All this with one main objective: to provide students with the opportunity to gain real work experience even before graduation in order to be ready to enter the labour market.
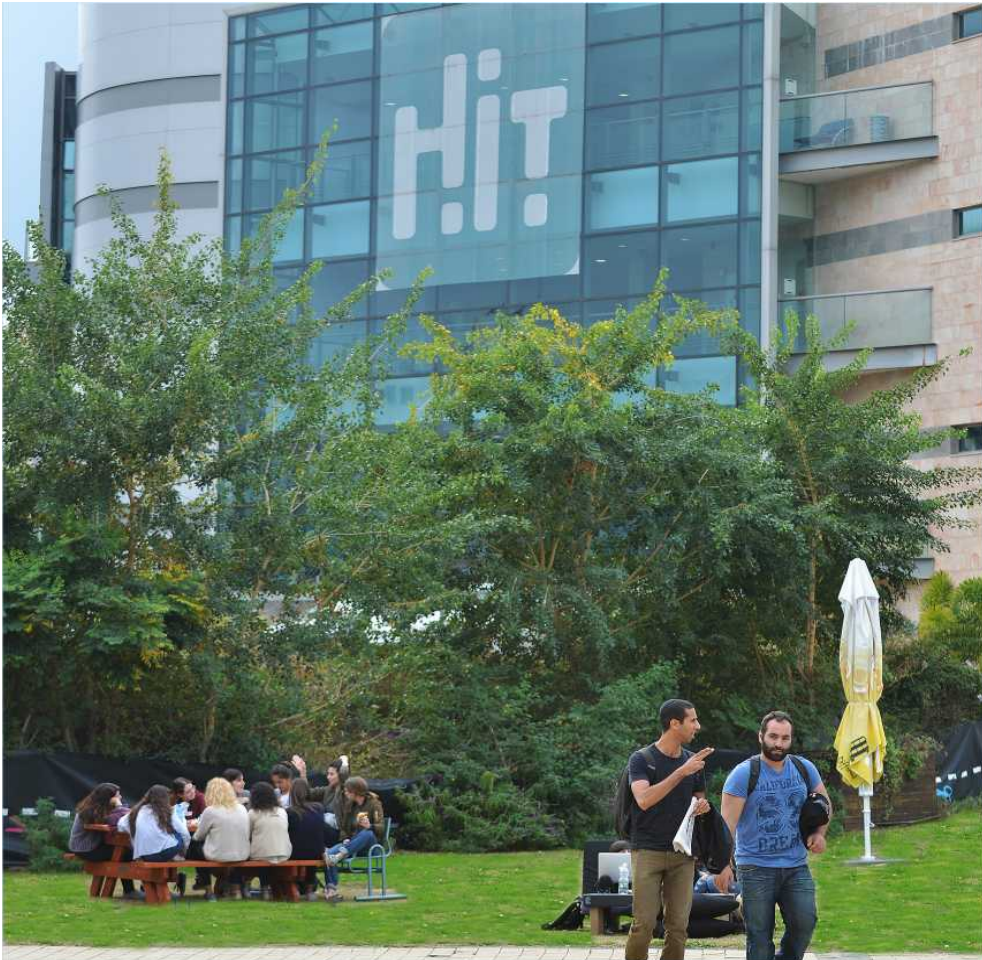
Stages of visioning:

■ Preparing graduates who will be in demand, will be leaders and partners in Israeli industry and society.

■ Leadership in innovation and entrepreneurship, broadening and deepening international links with research and industry, bringing industry onto campus and establishing joint innovation centres with industry.

■ Developing of applied projects and research on breakthrough technological developments, with close co-operation with research institutions, industry and government both in Israel and abroad.

■ Identifying business opportunities and/or commercial partnerships, reaching agreements and expanding intellectual property rights, as well as the volume of donations and/or investments coming to the institute.

■ Developing tools and best practices for project-based distance learning, creating virtual cloud laboratories for project execution, management and remote monitoring, and multidisciplinary team management.

■ Preserving and managing research/technological knowledge of project products in a central database with a focus on continuous development.

Principles and methods of action to ensure a professional experience for every student by the end of the academic year 2023-2024:

We have created an institutional structure that includes academic and professional staff, a Project Centre and there will be collaborative agreements with leading Hi-Tech companies, training courses, development labs, hands-on projects and a system of data collection and metrics to evaluate and improve the programme. All of these are working in place to create a 'technology hothouse' available to students and staff, with the aim of connecting them with the best minds in leading industry and encouraging entrepreneurship by supporting the development of new technology ideas for their industrial realisation.

A Project Centre in cooperation with industry has been established, led by a highly qualified staff member with professional experience in leading Hi-Tech industries in Israel and worldwide, who leads, identifies challenges, sets goals and defines priorities. A steering committee will be established to propose a strategic vision that includes, among others:

- Diagnosis of the existing situation and goal setting
- Building technology infrastructure and prioritising hands-on projects
- Prioritisation of cooperation agreements with technology companies
- Building training tracks by speciality.

In the academic year 2021-2022, long-term agreements were signed for cooperation and promotion of Hi-Tech technologies with industrial, academic, governmental and medical organisations such as: Hi-Tech companies, government agencies, local authorities, security and health authorities. Here are some examples of places for professional internships: **hospitals such as Sheba, Ichilov, Abramson & Belinson, Tel Ha-shomer, Enigmatos; power companies such as Shikun & Binui, Cardorex, SAP Israel, Mahanef, Israel Cartography Centre, Holon Municipality; Sherut burial site; Israel Police; Riskena; government coordination body in the districts; Ituran/ERM, GOOL - development of training systems, and many more.**

Objectives and parameters

The AIP programme started in the academic year 2021-2022 and has since then shown great success. We have met all our objectives and even exceeded them. In 2022, we have developed a model for working on projects in partnership with the Hi-Tech industry, from the initiation stage to the submission of a working system.

The model incorporates tools and techniques used in leading Hi-Tech industries in Israel and around the world, with the aim of ensuring the rapid integration of students into the labour market. In 2022, 192 students participated in the programme, of which 35 were from special populations.

In 2023, we will see an increase of approximately 20% compared to 2022 in the number of participating students, the number of projects, teams and courses, and the number of special populations students (see table). We have expanded and deepened the programme with a focus on developing partnership agreements with international organisations such as Ukraine and Uzbekistan.

Nineteen courses have been created in co-operation with industry, amounting to about 100 hours of training, which provide participants with credits (credits) as well as familiarity and experience with tools and techniques to carry out a practical project in industry.

The programme offers specialisations for students in various disciplines in the Hi-Tech field where the demand for employees is increasing every year. Some of these include: artificial intelligence and machine learning, computer vision, speech and audio processing, Big Data, virtual reality, cybersecurity, autonomous drones and 3D modelling, mapping and GIS technologies, smart cities and IoT, autonomous vehicles, digital technology in medicine, financial technology, robotics and intelligent systems, wearable computing and many more.

In 2024, the programme will be expanded by more than 20% compared to 2023. The new goal is to attract 300 participants in order to apply a similar model also in other faculties of the institute: electrical and electronics engineering, industrial engineering and technology management, educational technology, design faculty and the department of digital technology in medicine. Thus, by the end of the academic year 2023-2024, every student will have the opportunity to gain professional experience within their study programmes. In addition, there will be a curriculum update from the first year onwards to ensure that students acquire the skills to meet the challenges of completing projects in industry, such as: the introduction of programming languages, concepts, tools, techniques and teamwork experience. A student will build a personal portfolio of work, will be familiar with current projects on a variety of problems and areas, and will receive continuous feedback on their progress.

	Number of students	Number of projects	Number of teams/groups	Number of classes	Number of students from special groups
2021-2022	192	40	55	14	35
2022-2023	230	52	68	19	48
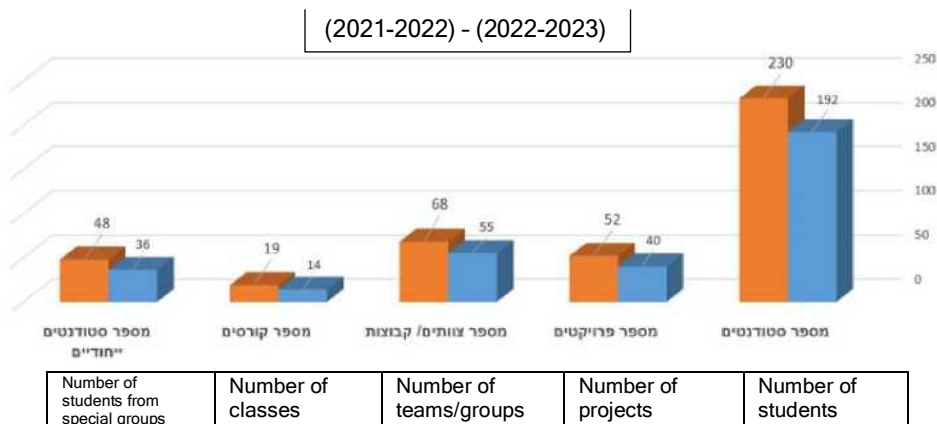
(2021-2022) - (2022-2023)

| Number of students from special groups	Number of classes	Number of teams/groups	Number of projects	Number of students

Forecast for 2022-2023 a.y.　　　　2021-2022 a.y.

Note that graduate academic projects are not included in the internship programme. Professional staff from industry will continue to be recruited to concentrate, support and operationally manage the programme, together with academic staff who will collaborate in the implementation of the Project Based Learning methodology to apply academic and practical components, as well as content appropriate to the skills and competencies acquired by the students for successful integration into the labour market.

The teaching methodology will respond to a dynamic and changing world, and is based on the complex tasks and challenges students face related to teamwork, design, problem solving, research, decision making, writing system documents and implementing industrial projects. A marketing platform has been created - a website for student registration, advertising and marketing the programme to the target audience: students, academic staff, tutors and industry representatives. The platform will contain a database of projects that have been implemented or are planned to be implemented, as well as all programme documents: vision, programme goals and objectives, intellectual property agreements, rules and procedures for project implementation, and forms and templates for registering and submitting project results.

A management platform has been established that will lead to increased efficiency and revolutionise programme implementation, based on real project management and control tools widely used by tens of millions of users in the country and around the world, such as: the GitHub unified development platform and the Agile Project Management model, the implementation of a system to monitor, track and report on the status of project implementation, the application of a data collection system to evaluate, improve and develop the programme, the implementation of a feedback system for the evaluation of teaching by academic staff and tutors from industry, as well as a system for tracking programme graduates and their integration into industry.
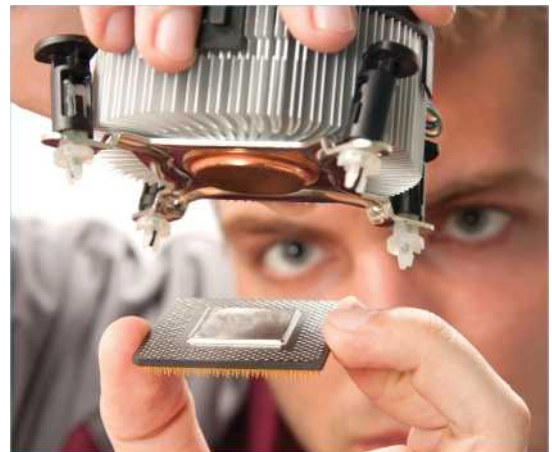
Cloud-based virtual labs have been created. Priority is given to the execution of practical projects in all their phases through remote access to virtual labs instead of using local hardware. Developers can initiate a new project, define it, plan it, develop code for testing, integrate, launch and collaborate in the virtual lab on projects and their final products, and present a working prototype.

Remote access to virtual labs running alongside physical labs represents a revolution in preparing students for industry and results in annual efficiency gains and significant cost savings. There is no need to invest unnecessary resources in physical labs, complex computing systems, infrastructure and resources such as space, electricity, maintenance and lab management. This will allow instant access to a wide range of hardware, software and tool components such as operating systems, development environments, databases and communications without locally installing and waiting for programmes and systems, and the necessary components of the project system will be available for instant sharing. This will allow students within the project system to quickly develop and implement new ideas.

As a result, the length of time from the idea stage and the beginning of development to the working prototype stage of a product is reduced.

Institute policy to make the Academy that Integrates Practice programme accessible to special populations.

HIT encourages the integration of students from diverse backgrounds in all areas, in partnership with Israeli Hope programme, both academically and socially.

The institution's policy of integrating these students into practice programmes is part of the institution's ten-year programme and accompanies us throughout our course of study. The Dean of Students Office provides comprehensive support and assistance to each of these populations, ensuring that all material and information provided is accessible both verbally and physically.

We emphasise on campus accessibility both physically and academically. To ensure academic accessibility, there is a centre that provides academic and other assistance to students with various disabilities. In addition, 80% of the classrooms of the institution are accessible to students with disabilities in accordance with the regulations of the Office of National Insurance. (acoustic ceilings, sound systems, headphones, etc.).

In practice, with regard to an academic programme that integrates practice, the following actions will be taken:

■ A joint programme with the Student Support Centre is conducted to provide students with disabilities the opportunity to exercise their basic right to higher education with practical experience. The Centre focuses on the special needs of students with disabilities such as: hearing impaired and deaf students, physically handicapped, visually impaired students, those suffering from mental and chronic illnesses, etc. The Centre offers the following services: individual and group academic support from teachers or senior students, development of teaching strategies, provision of special equipment, adapted English, individual career guidance, joint activities with employers and support for graduates in their professional paths.

■ There is a joint programme with the Dean of Students who looks after students of Arab, Druze, Chechen, Ultra-Orthodox and Ethiopian origin to provide suitable support to these students including: individual accompaniment of each student, counselling, support and moral assistance. Tailored academic support is provided including: one-to-one tutoring, language support, study assistance and funding for dormitories/transportation, improving study skills - developing study strategies, tools for effective learning in an academic environment and much more.

STUDENT TEAM OF SUPPORT FOR SPECIAL POPULATIONS:

Ms Iris Silberman, Students from the Ultra-Orthodox Community

Ms Shira Admoni, Students with Disabilities

Ms Michal Tal, Students from the Arab Community

Method of data collection for programme evaluation, improvement and development

Tools and evaluation measures are being developed in collaboration with the Centre for Educational Assistance to examine the success of the programme and its impact on students and the institution. The evaluation programme will include factors related to the programme: students, professional factors from the institution and organisations. They will respond to surveys which will be used to evaluate the effectiveness of the course and practice from the perspective of each of them. The evaluation will explore aspects of challenges, difficulties, quality of practice, contributions, ideas for improvement and the like. The evaluation programme will deal with course-level effectiveness, long-term effectiveness, programme efficiency and programme flexibility.

Effectiveness at the class level

Use of surveys for assessment - surveys are designed to explore students' experiences of various aspects related to teaching, practice and learning. The use of surveys is intended for the purpose of managing the educational process to create improvements during and after the process, including obtaining feedback.

1. **Faculty members on behalf of the institute** – the instructor's experience in the course is important for the consistency of the programme and for attracting additional faculty. At the end of the semester, the instructor will be given a feedback questionnaire that will include the following: time spent preparing course materials compared to other courses; time invested in interacting with students compared to other courses; instructor's opinion of teaching effectiveness, achievement of course objectives, contribution to students, student success, overall satisfaction with the course, recommendation to continue the course in the current format; what the instructor feels should be retained and what should be improved for continuation. Faculty feedback questionnaires will be sent to the Educational Assistance Centre. The programme evaluation coordinator will have a joint discussion with the faculty member to draw conclusions for the future. The summary will be sent to the relevant stakeholders.

2. **Tutors from the organisation** - the views of relevant contacts will help to understand the organisation's experience regarding the inclusion of professionals from the organisation. The survey, which will be conducted during the semester and at the end of the semester, will include aspects related to satisfaction with the student's integration and contribution to the organisation. Among other things, indicators such as the level of knowledge with which the student came, the assessment of the student's performance and contribution to the organisation, the student's cooperation with the staff of the organisation, his/her potential for employment, etc. will be taken into account.

Open-ended questions about conservation and enhancement aspects will also be included here.

Appropriate online surveys will be developed for each target group in the online survey system. The distribution of the survey to students will be managed and monitored by the Education Facilitation Centre. At the end of data collection, a summary report to the instructor will be generated that will include distribution and statistical measures for the closed-ended surveys as well as free text student responses to the open-ended surveys.

Surveys conducted during the semester will be analysed and processed in such a way as to provide immediate feedback and lessons learned to improve the course process. End-of-semester surveys will be analysed against interim surveys, comparatively between groups (in similar questions) and over time.

Use of data will be in accordance with the rules set out in the Freedom of Information Act 1998 and in accordance with the provisions of paragraph 17a of the Higher Education Act. The Institute will respect the rights of students and teachers in relation to all feedback, assessment and academic measurement systems designed to improve the academic performance of the Institute. The institute will not link student and faculty data to a particular course without the consent of the information owners and stakeholders. The institute is committed to the faculty and students, including non-majority students, not to share academic or pedagogical data without a proper formal process.

Long-term effectiveness

In order to assess effectiveness over the long term, long-term studies will be conducted to track differences between students participating in the programme and matched control groups. These studies will examine indicators such as wage levels, employment rates in organisations where students gained experience during their studies, social adaptation of vulnerable groups, gender comparisons, degree of integration into the workforce in the relevant field of study, retrospective opinion of programme participants, etc.

■ **Effectiveness:** the allocation of resources of all stakeholders (academic staff, students, administrative staff, organisations) will be systematically monitored by continuously detecting and analysing difficulties and problems (through specified surveys) and allocating adequate resources to address them.

■ **Flexibility:** a macro-evaluation will be conducted every two to three years to analyse changes and trends in the labour market and assess the extent to which the programme is relevant to the global and dynamic marketplace.

Identifying indicators and methods for programme success and impact

As already mentioned, the indicators of success of the programme are satisfaction of all stakeholders and data proving that indeed the integration of students who participated in the programme into the world of employment was faster and more effective compared to the respective control groups. The indicators are both "soft", such as satisfaction, and "hard", such as salary level, career pathway, compatibility between field of study and employment, etc.
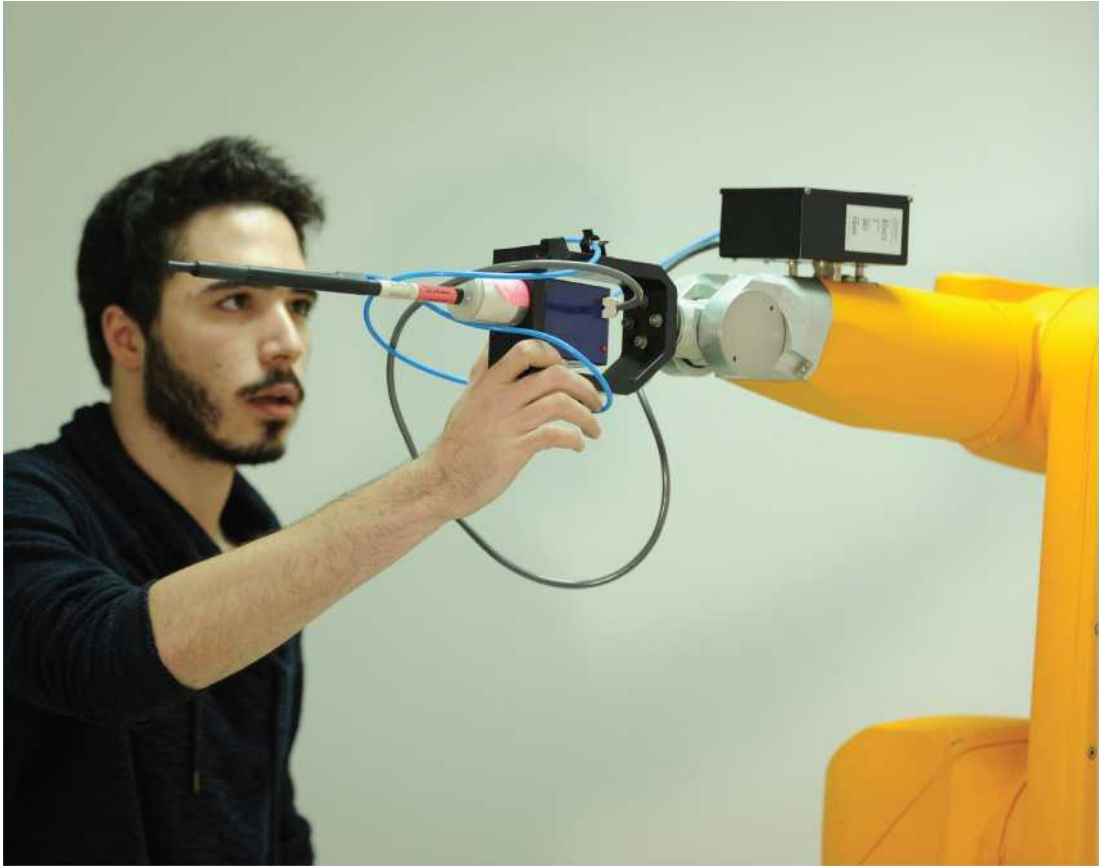
Conclusion

The proposed programme is designed for students who wish to gain professional experience relevant to their academic field of study and earn academic credit for it. It provides graduates with a deep and integrative understanding, a systemic vision incorporating scientific foundations, and experience and specialisation in the execution of real projects with industry, integrating a variety of cutting-edge disciplines and state-of-the-art tools and techniques used in leading industries, making them marketable in the labour market.

Organisational Framework

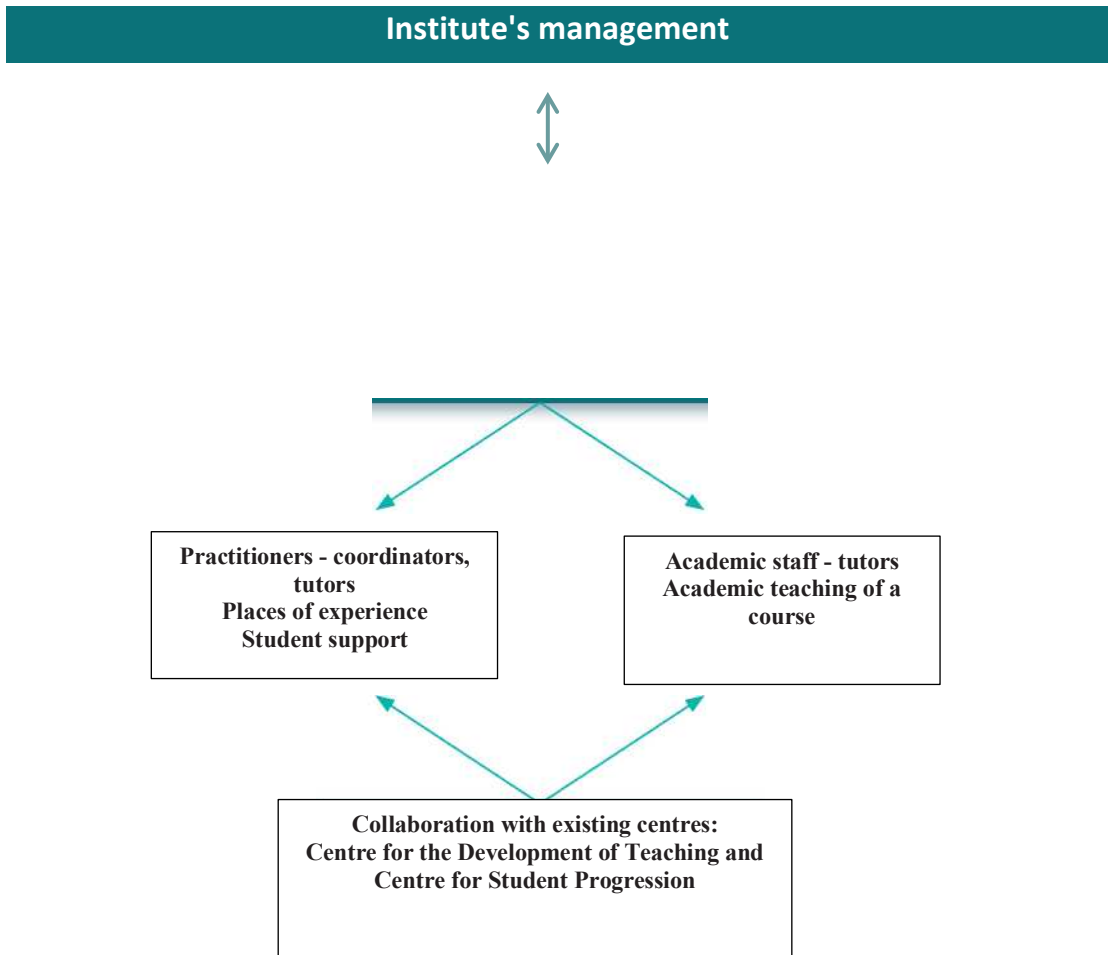| Position	Full name	Position within the institution	Role and powers
Head	Dr Limor Sahar-Inbar	Head of academic office	Liaison between the project and the management of the institution, comprehensive monitoring of the project and the achievement of its objectives.
Academic staff	Dr Jonathan Scheller	Academic Tutor Management	Academic management of lecturers participating in the programme.
Professional/ administrative staff	Dr Yaakov Damtov	Project Coordinator	Quality control of the link between the students' experience and the content of the academic courses.
	Mr Aaron Cohen	Industry relations project manager	Trial programme manager to achieve goals and objectives: identifies problems, sets vision, strategic plan and priorities.
	Ms Ahuva Oren	Academic Coordinator	Registration, placement, follow-up and academic accountability of students and faculty.
	Mr Mark Israel	Director of project development in co-operation with industry	Selection of organisations, projects and accompaniment of students. Monitoring of project development processes: innovation and its relevance to the organisation, future expansion, implementation, etc.
	Ms Shiran Yosef	Project Coordinator	Liaising with Aluma and utilising the resources offered by the association.
	Ms Michal Zakaria	Director of the Centre for Student Promotion	Ensuring that higher education is accessible along with an experience programme for students with disabilities and unique populations.

Organisational Framework Chart

Institute's management

Head:
Dr Limor Sahar-Inbar

Dr Jonathan Scheller
Academic management of tutors

Aaron Cohen
Project Manager of the Centre for Industry Internship

Dr Yaakov Damtov
Responsible for training courses that include internships

Mark Israel
Project Development Manager for Industry, Recruitment Organisations and Support in Projects

Ahuva Cohen
Coordinator of academic management within the programme

Academic and industrial composition of teachers and tutors participating in the programme

Ms Shiran Yosef
Project Coordinator

Institutional system framework

Institute's management

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Practitioners - coordinators, tutors
Places of experience
Student support

Academic staff - tutors
Academic teaching of a course

Collaboration with existing centres:
Centre for the Development of Teaching and
Centre for Student Progression

Organisational framework

Process of launching the pilot model

In the academic year 2023-2024, the programme is planned to be delivered in three cycles: (300 people to participate in the project, of whom 20 per cent are representatives of special groups).

First cycle – two-semester course conducted in semesters A and B.
Second cycle – two-semester course conducted in semester A and in the summer term.
Third cycle – conducted in the summer term.

Administration will be managed using the Higher Education Council's new and unified CRM system, which will support enhanced mechanisms across all teaching and academic processes: from the stage of proposing projects and placements, student self-enrolment, assigning student teams and mentors to a placement site, and monitoring and reporting on students' weekly progress. As a result, the system will enable us to manage the programme efficiently and effectively, as well as providing the Higher Education Council with a shared database.

The academic curriculum provides students with specialisation in one of the leading industries such as cybersecurity, machine learning, financial technology (fintech), digital technology in medicine, computer vision, speech processing, virtual reality, robotics and artificial intelligence, smart transportation and autonomous cars, smart cities and IoT, autonomous drones and 3D modelling, mapping and GIS technologies, and wearable devices. All this combined with best practices, working with innovative development tools and advanced management concepts from leading players in the industry.

The role of the industry tutor and academic supervisor includes: directing students, presenting a problem description, characterising and defining project requirements, setting interim goals, assigning work and a timetable for each student.

Establishing meeting requirements, assisting with design and scientific aspects, monitoring project progress throughout the year and providing students with expert feedback on project presentations.

The student is solely responsible for completing the personal project in all its stages: proposing the project, planning and developing the necessary elements, writing documentation and progress reports during the project, and preparing final project documents. To register the project, the student must submit the electronic form "Two-Semester Project Proposal".

Project execution involves assessing the need for the project, its feasibility, researching existing solutions (if any), proposing alternative solutions and creating the solution itself, both from a theoretical (academic) and practical point of view.

Each meeting with the supervisor will be summarised by the students in the form of minutes that will serve as a record for students to track their tasks. Students must adhere to industry-accepted standards for project development, with an emphasis on meeting requirements, achieving deliverables, and meeting deadlines. Any deviation requires written approval from the supervisor.

In my role as Head of the Project Centre, I will be responsible for presenting the annual strategic plan for the pilot programme to the organisational structure, starting in the academic year 2021-2022 and continuing through the following years, which includes challenges, vision, strategic plan, goals, objectives and priority schedules. There will be monitoring and accountability through appropriate positions within the organisation to ensure that the goals and objectives identified in the programme are achieved.
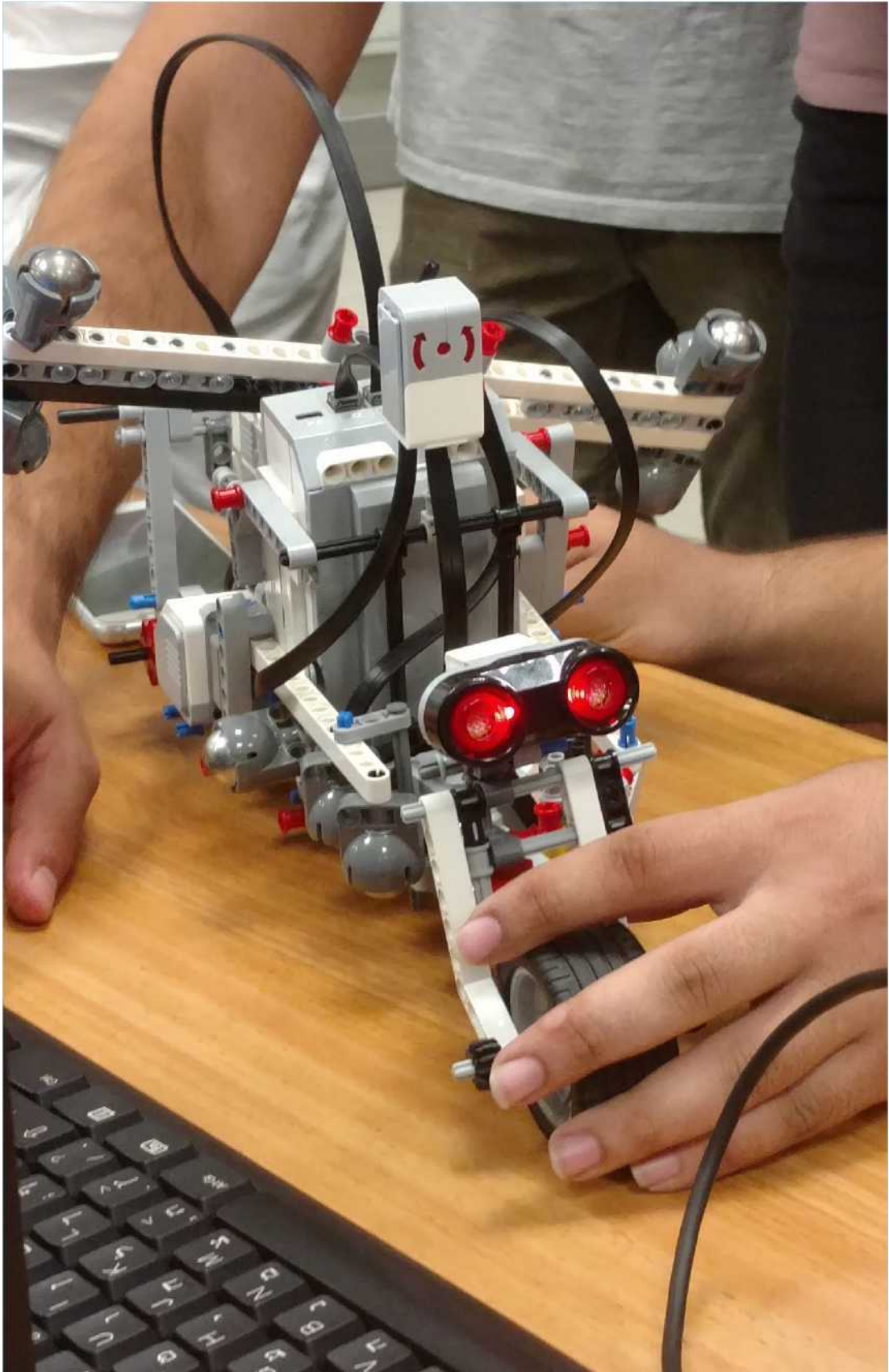
Learning framework and academic content

The learning structure and academic content is fully realised through a new two-semester course approved by the Institutional Committees (see Appendix - Design Experience in Industry course syllabus). The course is conducted in a real industrial environment under the supervision of an industrial tutor and accompanied by academic supervision, with a minimum workload of at least 100 hours.

One of the main ideas behind the programme is to introduce the student to industry in a step-by-step manner throughout the academic process, starting in the first year, so that the student is as prepared as possible for the project. In this way, the student will be able to make the most of the time they spend on the project and also contribute to the organisation in which they undertake the project.

To achieve the core model, in which the student undertakes a project in a specific industry, a minimum of 100 hours and joint supervision from industry and academe, we offer supporting models. The role of each supporting model is to prepare the student and provide him/her with suitable tools to work in an industrial environment. Furthermore, within the supporting models the student will start to build their portfolio (within the academy). The quality of the portfolio and grades in programming and PBL courses will have weight in assigning a student to a project, in the case of multiple students interested in doing the same project.

Support modules will be managed by academic staff. If possible, priority will be given to recruiting lecturers from industry for some programming courses.

Modules include the following:

■ Introduction of working environments, procedures and industry-accepted terminology in programming courses.

■ Increasing the project-based learning (PBL) course offerings number to give the student experience of working independently, in preparation for the industry core project module.

The support modules will be delivered by academe staff. Wherever possible, preference will be given to bringing in lecturers from industry for some programming courses.

Modules include:

From the beginning of the 2023-2024 academic year, in the first year the student will learn the basics of programming in two of the most popular languages on the market today, Python and JavaScript. In the second year, the student will be introduced to working with relational and non-relational (NoSQL) databases and courses in data science. In courses that emphasise programming, the academic teaching staff will be reinforced by experts from industry. In parallel with the study of theoretical and practical principles of computer science, the student will be introduced to working methods and current standards for software development in the IT industry, such as specialisation in project execution in a single development environment based on the GitHub platform, in accordance with the principles of agile and rapid project management under Agile Project Management.

In addition, new project-based learning (PBL) courses will be developed and efforts will be made to add a practical component to other courses.
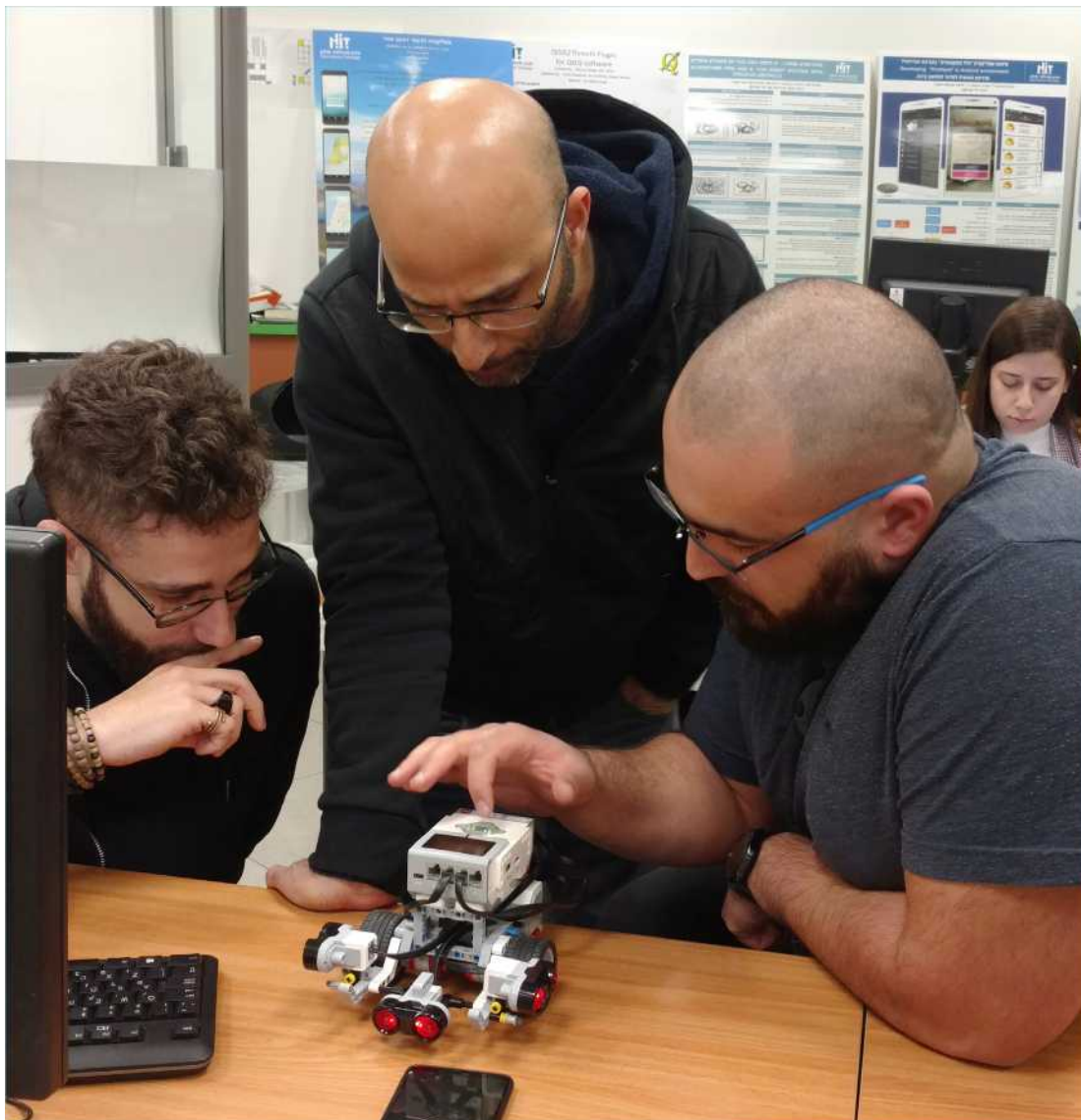
The development environment includes:

Client-side development, including the creation of basic and advanced interfaces, designed and dynamic. The programme provides participants with extensive knowledge and experience of programming in the environment.

Server-side development includes learning two of today's popular back-end web server development environments: JavaScript, C# Python   .

Building databases using two leading approaches: relational databases - RDBMS, non-relational databases - NoSQL, and for processing unstructured and semi-structured data, such as collecting data from tens of thousands of sensors and cameras scattered around a smart city.

- ■ MySQL/PostgreSQL — for work with structured data bases.

- ■ Mongo DB — for handling unstructured data (unstructured data/semi-structured data) on the Internet and in the BIG DATA world.

Integration of innovative methods, tools and models:

Platform, and Github specialisation in platform operations for a unified open source development environment and multi-platform operating system. It is a distributed version control system that works independently of network or central server access and helps developers in a project team to share, consult, store, manage versions, manage history and work together to develop code in a single environment; quickly, with information integrity and distributed process support.

Agile Project Management model specialising in creating a software solution in the shortest possible time, with the assumption that during development the early specification may change and that there is a mutual relationship between the development team and the client at each stage of the project.

Product of the process described:

Direct contact with the industry and actual work in a team accompanying the industry.

This process will allow the student to carry out a project on a problem posed and defined by the industry, and the product of the project will actually be used by the industry. These are projects that are designed to help the industry meet the new challenges facing it. The project will be assigned a supervisor from the industry who will define the goals of the project and closely monitor the execution process, much like a team leader in a high-tech company. In addition, the faculty will assign a supervisor to the project for follow-up and necessary academic support.

Model - project with extended industry experience

Type of model (Course combines experience / individual academic support / group experience / final project combines experience / any other model that meets the purpose of the programme)	Two-semester projects for second and third year undergraduate computer science students.
Target audience (Departments/faculties/degree level, etc.)	Second and third year undergraduate students
Number of credits awarded to the student who integrates into the programme	7 credits.
The accompanying factor for a student and the nature of the academic support	Industry facilitator in various fields with personal guidance and weekly follow up. Project definition will be done by industry
Expected learning outcomes	Preparation of a product according to an industry standard that meets market requirements in Israel and abroad.
Hours and structure of the experience in the mentor's organisation (individual/group/organisational/remote/project-based/other)	The requirements for the project are determined by the mentoring organisation. The project is mainly carried out in a tutoring organisation . The amount of experience in the mentoring organisation will be at least 100 hours. Academic support will be provided by an advisor appointed on behalf of the faculty, while professional guidance will be supported by an academic supervisor from the tutoring organisation . Both academic and professional supervision will take place within the tutoring organisation.

How to adapt the experience to the field of study (Examples can be combined)	The topic and scope is determined by the requirements of the mentoring organisation. At the end of the project, the student presents a finished project on various topics. The product of the project is handed over to the tutoring organisation. A student applies tools and ideas from the different courses, adapting to the requirements of the mentoring organisation and in action within the tutoring organisation .
	In the first stage, the research work is carried out by the student during independent study with a professional advisor from the mentoring organisation. Within the first stage, the student is required to explore new topics that have not necessarily been fully covered in compulsory or elective courses .
	The project is accompanied by milestones which must be submitted to both the supervisor and the advisor on behalf of the tutoring organisation .
	At the end of the project, the student is required to present the project to the two project facilitators. In addition, the student will submit a comprehensive project report .
	The student will gain experience in teamwork in high-tech companies.
Expectations of the nature of tutoring students in a tutoring organisation	A mentor from industry will help the student to develop practical abilities. The mentor will provide the student with the opportunity to transfer abstract and theoretical knowledge combined with programming knowledge and tools from industry into a finished product at a level that can be used by the customer. The mentor will serve as a role model of a teamleader in the industry. Thus, the student will experience an industry working environment that meets industry requirements and standards.

Annex: Curriculum - Scope of an Industry Experience project, extended

Project in co-operation with industry, two-semester one

Learning mode: Practical project-based learning, PBL

Weekly hours: 4 hours supervised by a supervisor and industry

Credits: 7

Pre-requisites: As decided by the faculty

Course objective:

Completion of a practical project defined by the industry, accompanied by an academic supervisor and a professional supervisor (mentor) from the industry, designed to allow participants to gain experience in a real development environment, integrating teamwork in a genuine high level, technological professional environment that fosters entrepreneurship and creative thinking, and working to complete a practical project in collaboration with the industry. The project is at an academic level and will address issues related to the student's specialisms, will focus on planning and building algorithmic solutions, and/or software development that will add value to industry or existing knowledge in the field.

The course provides participants with a specialisation in one of the industry's leading disciplines such as: cybernetics, machine learning, financial technology (fintech), digital technology in medicine, computer vision, voice and speech processing, augmented reality, robotics and artificial intelligence, smart transport and autonomous vehicles, smart cities and IoT, autonomous drones and 3D modelling, mapping and GIS technologies and wearable devices. All this combined with best practices with innovative development tools as well as management concepts from industry leaders.

The Institute has existing collaborative agreements for the initiation and development of hi-tech technologies with about 25 mentoring organisations in industry, government and medical academia such as: hospitals Sheba, Ichilov, Abarbanal and Blinson, Taldor, Enigmatos, The Electric Company, Shaham Mekorot, Cardorex, Sapiens Israel, Wing, Israel Mapping Centre, Holon Municipality, Desalination Plant Awareness, Israel Police, Riscana, Coordinator of Government Operations in the Territories, Ituran / ERM, GOOL development of training systems and many more.

The course includes specialisation in the implementation of projects in a unified development environment based on the GitHub platform, on the principles of implementing agile and fast project management in the Agile Project Management model, which is considered the most innovative. Specialisation in one of the two leading open source environments on the market: developing in a Python environment and/or developing in a Java Android environment, and working with relational databases like RDBMS rather than NoSQ type relationships. As well as working with unstructured information like Mongo DB in the Internet world and BIG DATA.

The project team is obliged to invest at least 100 hours in the development of the project in industry and to demonstrate their ability for independent professional activity with the use of professional literature and application of the materials learnt in the course of study in the pre-degree work. Upon completion, the team is required to defend the project, each of the participants will present their part of the project development, their contribution and professional achievements.

The role of the mentor includes: guiding the student team, presenting the problem description, technological and scientific aspects, identifying and formulating project requirements, setting meeting requirements, assisting with aspects of development, monitoring the progress of the project throughout the year and monitoring the quality of the student's interaction with the mentor in the organisation. The mentor will define specific roles for each team member, set interim goals, work allocation and schedule for each student.

The student is fully responsible for the completion of the personal project at all stages of the project: starting with proposing the project, planning and developing the necessary components of the project, writing documents and reports on the progress of the project, and submitting summary documents including: planning documentation, literature and source review, project book, project poster, project defence presentation, project video, working system code.

Budgetary assessment for the launch of the programme

■ Project coordinator and performance evaluation 60% - **72,000 shekels** per year, employer's costs.

■ Five standards of coordinators - consulting organisations, identifying new projects, recruiting students, accompanying projects with industry. Total **150,000 shekels** per year, staff costs.

■ Laboratories: Institutional collaboration included institutes between faculties on campus, procurement of hardware and software to support projects with industry - budget estimate was **76,000 shekels**.

■ Writing structured lesson plans to internalise industry standards and working procedures- estimated budget of **30,000 shekels** per year .

Hiring a manager to assess the need: creating a platform to collect benchmarking and reporting data, collecting data to assess the quality of the programme - estimated cost **144,000 shekels**, employer's costs.

Total: **472,000** shekels

Signed commitment

I hereby certify that Holon Institute of Technology HIT will comply with the conditions specified in the plan

Director General HIT

Dr Limor Sahar Inbar
Head of Academic
Office