HUJI INNOVATE האוניברסיטה העברית בירושלים THE HEBREW UNIVERSITY OF JERUSALEM

TIP - Shaping the Future

Meet- Learn - Create

Course Description

The Trans-disciplinary Innovation Program (TIP) is an intensive 6 week international entrepreneurship program. The program highlights today's breakthrough technologies and hottest business trends, while giving the participants hands-on experience developing entrepreneurial endeavors. The program will tap into a wide network of industry leaders, investors, entrepreneurs, and top executives.

TIP brings together students from around the world with the purpose of innovating through a trans-disciplinary approach. TIP participants will gain an understanding of today's most important technologies such as Artificial Intelligence, Bio-Engineering, Cybersecurity (including Blockchain) and the Internet of Things (IoT), and their power to transform industries such as Health, Finance, Agriculture, Food, Education, Urban Systems, Transportation and more. TIP exposes participants to a culture of innovation and exploration through world-class speakers and mentors, hands-on workshops, interactive group discussions, behind-the-scenes tours at emerging startups, onsite visits to major technology companies and lastly, a visit to Israel's major cultural and historical centers.

The TIP final project represents a unique opportunity to develop a venture idea, a prototype and a business model and participants will be invited to pitch their ventures to a panel of experts and investors. Participants who finish all requirements will receive a certificate of completion while also having the option to take the course for university credit.

The Main Themes:

Entrepreneurship

We live in the age of rapid changes - technological acceleration is shifting the way we live, eat, communicate, drive, buy, pay, play and work.
These changes represent enormous opportunities for entrepreneurs to lead and design the future. TIP combines new theory and practice to enable participants to explore the process of creating innovative ideas that meet real market needs. During the program, participants will go through a process of customer development, idea validation, business model development, MVP design and marketing strategies. Israeli Industry experts, leading investors and entrepreneurs will advise the participants in this journey, culminating in an investor pitch session at the end of the program.

Artificial Intelligence

The promise of AI is quickly making headway in the world. In 2016 Google Deepmind beat the world champion in the game of GO using techniques developed over the last 20 years. Leveraging the explosive growth in computing processing power, memory and distributed cloud computing, today's AI platforms can do things that were unbelievable a decade ago. In this module participants will learn about the history of AI, it's various subfields (i.e. Machine Learning, Deep Learning, etc), understand how to set up a system to learn and make decisions per a given set of big data, and lastly, how these capabilities can be used in developing new services and businesses. A discussion will also be held around potentially negative effects of the AI revolution,.

BioTechnology

The world has gone through a number of technological revolutions over its history. Today we live in the age of digital communications which has brought us computers, the internet and mobile phones that have changed the way we communicate, write, research, play and live. Many believe that the next technology revolution is already here and it will be focused on how we can use biological systems as building blocks of many new and exciting solutions and services. From nanobots that can deliver medicine directly to affected areas in our bodies, to personalized medicine, smart medical devices, Genomics, ultra-rapid gene sequencing, low-cost DNA writing, selective gene manipulation/substitution and all the way to plant and food technologies which are crucial to feed the 10 billion people expected to live on earth by 2060.

Cyber- Security

In the world of ubiquitous networking, where more and more of our lives are supported by services on the internet, a critical issue will be cybersecurity. How will we retain our privacy in such a world? How will our systems, from phones, medical devices, cars, trains, planes homes, buildings, factories, cities and more, be safe and not fall into the hands of black hat hackers, organized crime and unfriendly governments. In this module participants will first learn about the way in which the internet was developed, and how it is inherently an unsafe place. They will then learn about the innovations developed over the last 30 years to make it safer. Cyber Security technologies (firewalls, encryption, multi-factor authentication, biometrics, etc) will be learned next to the methods developed to attack them (Spoofing, Man in the Middle, Stack Overflows and more, as well as Social Engineering). Participants will develop an understanding of the issues, technologies and solutions and will ideate ways in which new ventures can be developed around key cybersecurity capabilities.

IoT

Over the last 20 years a multitude of devices ("Things" as opposed to multipurpose computers) have had TCP/IP communications chips added to them, thus making them accessible and controllable over the internet (i.e. Security cameras that can be viewed over the web). Industry has joined the party by embedding internet accessible sensors and microcontrollers into a multitude of things (bridges, trucks, buildings, dams, and more) thus helping to monitor them and know when they will need maintenance before they break. The promise of IoT is to make anything and everything connected, and in the process allow the creation of smart systems like smart sewage, smart garbage, smart roads, smart traffic lights, smart homes, smart factories and smart cities, among others. The potential is huge, but there are many risks that must be known and planned for. In this module participants will learn about the basic building blocks of IoT (Sensors, Micro-controllers, Communications Protocols, Power management), existing and future IoT service and business models next to the major security issues that must be dealt with.

Learning Outcomes:

1. Participants will understand the main capabilities of key emerging technologies: Artificial intelligence, Bio-Engineering, Cyber Security and the Internet of Things.
2. Participants will understand the most common business models in the technology world.
3. Participants will become familiar with selected business sectors and the ongoing disruption in them: Healthcare, Agriculture, Cities, Finance, Security, Education, etc.
4. Participants will know how to generate new ideas to solve real world problems.
5. Participants will know how to transform their ideas into a business product or service and develop a business model to sustain it.

Course Evaluation:

- Participation: 20%
- Final project: 60%
- Presentation: 20%

Academic Manager: Dr. Amnon Dekel

Amnon Dekel is the Executive Director of HUJI Innovate, the Innovation and Entrepreneurship Center at the Hebrew University Jerusalem. Previously, Amnon served as the Chair of the Department of Software Engineering at the Shenkar College of Engineering & Design in Israel. Amnon has over 20 years of experience in product development of IT based services and applications, as well as more than 15 years of experience in Applied Research in the areas of User Experience and Mobile Computing. Amnon has participated in founding 3 companies in the area of video sharing, personal networking and indoor navigation. Amnon has received numerous international awards, including a Pulitzer nomination for his work with the New York Times. When he has time, he partakes in creating technology based art, and his work has been funded by the Victoria and Albert Museum in London.