



October 2018

## **Sustainable Development: the bridge between economic development and the environment**

This is a unique course, a collaboration between Tel Aviv University and the [Eilat-Eilat Renewable Energy Initiative](#). The course condensed to 5 days in the Arava desert, equivalent to a semester long course of 3 academic credit points. 'Eilat-Eilat', located in the southern Arava, has been operating for the past ten years to enhance the socio-economic and technological development of the region. The heart of Eilat-Eilat's activity is the most predominant local resource – **the sun**: producing clean solar electricity for 100,000 people, promoting technological innovation and cleantech, regulation and policy promotion, international conferences, academic and educational training center and more. [The Boris Mints Institute](#) at Tel-Aviv University is an inter-disciplinary research center, working to find strategic policy solutions to global challenges, and has a very active and successful research lab dealing with sustainable development.

### **Why development and energy?**

Energy is a field that goes beyond technology and relates to policy, industry, economy, digital information, development and entrepreneurship, and serves as the basis for a worldwide entrepreneurial sector with enormous potential. In this course, we will emphasize the energy sector as an important pillar in the Energy-Food-Water nexus. We are aiming mainly at developing countries where the needs are huge, and entrepreneurs can shine. University students from all over the world are the future generation who will have to provide solutions for climate change and to meet the needs of the future. The course participants will gain a perspective that can provide answers based on an economic and technological viewpoint, while at the same time will be exposed to a worldview of sustainability as the basis for development.

### **Why in the Arava?**

Because of the unique development model that does not exist anywhere else in Israel and is exceptional according to international standards. The number of technologies and exposure to start-up companies, entering commercial solar fields and test-fields, is an experience which past participants have described as the most significant seminar they had taken during four years of university studies.

### **What will the course include?**

In a world where energy demand is soaring, population is growing, and economic development engines are identifying new markets, important questions are raised regarding the tension created between the will for development and the environmental impact. Building the needed infrastructure requires new thinking, both technological, social and economic, to create balanced and sustainable development. In this course we will focus on the food-water-energy nexus through the looking glass of economy and environment. The course will include academic lectures from top TAU researchers, presentations given by successful entrepreneurs, as well as hands-on experience in fieldwork. The course will be given in English and is suitable for curious Master's students who are eager to make apposite change in the world. Our students come from various disciplines: public policy, engineering, environmental studies, life sciences and other fields.



## Main contents:

### Thursday – introduction at Tel-Aviv University

- What is sustainable development? The tension between development and conservation at macro and micro levels.
- Environmental Sustainability - ecological footprint, the Paris Agreement, international commitments and the connection between development and the environment.
- Introduction to renewable energy and a technological overview. Global outlook on the solar market: forecasts, challenges and international targets for the field.

### Sunday – drive south to the Arava

- A visit to Wadi Attir - the five sustainability principles as an engine for development - preserving the Bedouin's traditional life coupled with technologies for energy production and advanced agriculture. The visit will emphasize the existing situation and what problems are solved through the project.
- A visit to the Ashalim solar project, 250 megawatts. Tour of the solar tower power station for the production of thermo-solar energy. After the tour, an open discussion on the project's economic viability, regulatory challenges and the prospect of thermo-solar remaining a relevant player in the energy market.
- Visit at Rotem industrial park - Brenmiller demonstration site: an autonomous system based on thermal storage for energy production. Storing energy at high temperatures (up to 500 degrees) and providing a variety of solutions to the distributed electricity market.

### Monday – in the Arava

- Tour of the Southern Arava Agricultural Research and Development Center - introduction to irrigation technologies, dripping versus sprinklers etc. Why some of the technologies that reach the developing world do not succeed?
- Tour of hydroponic greenhouses - an example of future and economical agriculture, without soil and pesticides.
- Management of water resources in arid regions: technical solutions with wide distribution potential such as solar water treatment and water retention, solar desalination and gray water treatment.
- Cross-border cooperation between Israel and Jordan: The Red-Dead Sea Water Conveyance - supplying water and energy as a basis for regional cooperation.
- Processing and time in groups: an open discussion on the impact of large projects on the environment, and the dilemma of necessity for the residents.

### Tuesday – in the Arava

- Tour of the Lotan Ecological Park - construction of ecological climate-friendly housing and net-emission systems.
- Tour of the first solar field in Israel and demonstration of solar panel robots for cleaning.
- Tour of the off grid Demonstration Village - what are the needs and challenges in developing countries. Exposure to Israeli food-energy-water technologies and the vision to enter the African market.
- Renewable energy as a catalyst for regional development in the Arava. How this work can be a development model in other countries.



### Wednesday - in the Arava

- Challenges in the field of energy storage and how they affect the global energy economy - through examples of the CAPITAL NATURE technology incubator - storage, charging of electric cars, etc.
- Tour of Eilat's desalination plant.
- Eilat's unique wastewater system, in which not a single sewage drop has poured into the sea for 12 years.
- Eilat Smart City - urban tour in neighborhoods where Eilat operates efficiency programs.

### Thursday – in the Arava and back to Tel Aviv

- Digital information management - new trends in the management of agricultural information, water and energy.
- Working in groups - what are the economic-social-technological obstacles to bringing products and solutions to the developing world?
- Workshop in groups as summary of the seminar.
- Return to Tel Aviv.