

Structure of the Study Program

The Energy Engineering Unit offers studies toward the master's degree (M.Sc.) and doctorate (Ph.D.). Requirements for the master's degree include 36 course credits.

Two main sub-program studies are suggested:

- a. Interdisciplinary studies for master degree with thesis in Energy Engineering.
- b. Interdisciplinary studies for master degree without thesis in Energy Engineering.

* Details for Ph.D studies in Energy Engineering can be obtained in Krietman school, BGU.

Energy Engineering Unit

Interdisciplinary studies for master degree with thesis in Energy Engineering

Program purpose: To educate master students in energy engineering, in a interdisciplinary teaching program combined with deep research study – Thesis.

The student must accumulate must accumulate 36 credits as follow.

1. Deep research study – **Thesis** – 12 credits.

2. **Core studies** – obligatory:

- Introduction to energy engineering – 0 credits (complimentary studies consisted on the following chapters: chemical basics; thermodynamic basics; biochemical basics; photosynthesis and plant polymers. Each new student will have to study chapters he did not covered in his bachelor degree).
- Seminar in Energy Engineering – 3 credits (2 semesters).
- Statistic models in energy engineering – 3 credits (or another advanced mathematical course, as needed for the thesis)
- Alternative energy resources A – 3 credits.
- Alternative energy resources B – 3 credits.

Sub-total – 12 credits

3. **Selection studies** will be taken from 3 group of courses in the energy engineering program (courses will be selected according to the thesis field, consulting the advisor and must be approved by head of teaching committee of the program)

Group A-Chemical processes and biotechnological aspects.

Group B-Materials, buildings and mechanical engineering aspects.

Group C-Electricity, nuclear and computing engineering aspects.

The student has to choose:

- 2 courses from the list of energy engineering program – 6 credits
- 2 courses from all the departments of Faculty of Engineering Sciences – 6 credits

Sub-Total – 12 credits

Following is the list of the courses in the three groups:

Courses of Group A – Energy storage; Fusil energy resources; Biofuels and biomass energy; Gas production and translocation; Fuel cell; Energy harvesting; Supermolecules and energy conversion; Energy economics; Statistic models in energy industry; Energy safety; workshop in energy industry.

Courses of Group B – Solar energy; Wind energy; Combustion engines; Jet engines; thermal irradiation; Energy storage; Energy in buildings; Building compounds and energy; Energy economics; Statistic models in energy industry; Energy safety; workshop in energy industry.

Courses of Group C – Power systems; Nuclear energy; Hydrides; Energy storage; Energy economics; Statistic models in energy industry; Solar energy; Energy safety; Fuel cell; workshop in energy industry.

*** Study fellowships and available for Master students with thesis from Energy Engineering Unit budget and also from Israeli Ministry of Energy and Water.

Engineering Unit

Interdisciplinary studies for master degree without thesis in Energy Engineering

Program purpose: To educate master students in energy engineering, in a interdisciplinary teaching program combined with limited summary research study.

The student must accumulate must accumulate 36 credits as follow.

1. Summary research study (without thesis) – 3 credits.

2. **Core studies** – obligatory:

- Introduction to energy engineering – 0 credits (complimentary studies consisted on the following chapters: chemical basics; thermodynamic basics; biochemical basics; photosynthesis and plant polymers. Each new student will have to study chapters he did not covered in his bachelor degree).

- Seminar in Energy Engineering – 3 credits (2 semesters).

- Statistic models in energy engineering – 3 credits (or another advanced mathematical course, as needed for the thesis)

- Alternative energy resources A – 3 credits.

- Alternative energy resources B – 3 credits.

Sub-total – 12 credits

3. **Selection studies** will be taken from the program of energy engineering:

The student has to choose 5 of the following 8 courses:

- Nuclear energy – 3 credits

- Solar energy – 3 credits

- Energy economics – 3 credits

- Energy in buildings – 3 credits

- Biofuels and biomass energy – 3 credits

- Statistic models in energy industry – 3 credits

- Power systems – 3 credits

- Building compounds and energy – 3 credits

Sub-Total – 15 credits

4. **Selection studies:**

The student has to study 2 Master degree courses from the faculty of Engineering Sciences, including energy engineering program – 6 credits