Innovative Photonics Education in Nanotechnology
586165-EPP-1-2017-1-EL-EPPKA2-CBHE-JP

Deliverable 2.13: Homogenization of Israeli Higher Educational System with the European Higher Education Policies.

This document provides information about the education system of Israel. We explain the European Higher Education framework equivalent to facilitate the integration of (a) of the iPEN modules into the Israeli partner Institutions; (b) to facilitate Israeli students enrollment into European Higher Educational Institutions; and (c) increase international mobility to the Israeli Institutions. We aim this document somehow to support closer and stronger relations with other countries and regions.

We must highlight that Israel is not part of the European Higher Education Area (EHEA) but participates in the Global Dialogue of the EHEA. Higher education in Israel is the responsibility of the Council for Higher Education, or CHE. Higher education includes both undergraduate and graduate programmes, and is provided by institutions that are divided into 4 categories by the CHE: universities (9 in total), academic institutions (36), academic colleges for education (23) and academic programmes in colleges under the academic auspices of universities. Academic programs in colleges under the academic auspices of universities that fall under the responsibility of the Bar-Ilan University (part of the iPEN project) are available in several disciplines. Depending on the institution, all study programmes ultimately confer the degree of Bachelor, Master or PhD Education provided by technological colleges (see under University education and Higher professional education) falls under post-secondary education in Israel and does not culminate in

an academic degree. Only Universities can offer PhD whereas the academic institutions may confer the degrees of Bachelor and Master.

In Europe the division of the Higher Educations' Institutions is: Research Universities that can provide 3rd cycle (level 8 – see below)studies whereas the Applied Science Universities (level 7 – see below) can provide studies up to 2nd cycle.

A unique feature of the education and training system is the influence, direct and indirect, of the Israeli Defence Forces (IDF). Most Israelis perform two or three years of compulsory military service on completion of secondary schooling, thus delaying entry into further or higher education or the civilian workforce. Israeli students in higher education are generally older than their counterparts in other countries.

Israel's unique population characteristics require a sophisticated education and training system (the IDF offers approximately 2500 qualifications). A downside is complexity and some resulting segmentation. There are distinct streams for Hebrew and Arab-language populations, plus one for the ultra-Orthodox. There are four main providers of education and training in the country: the Ministry of Education, the Ministry of Labour, Welfare and Social Services, the Council for Higher Education and the IDF. They do not cooperate consistently enough to enable learners to navigate across their respective different systems' schools and colleges.

There is much high-quality curricula and several thousands of qualifications available in the country, but not sufficient linkages among these. The IDF seeks recognition from academia and business of its qualifications, many of them attesting to advanced skills.

In 2015 the Israeli authorities provided the legal basis to begin developing a national qualifications framework (INQF). Since Israel is facing an expanding population as a combination of high immigration , low emigration, and high birth rates an INQF will be an extremely useful tool to deal with all the previously mentioned challenges. Israel's preference to design its NQF on EQF principles, signals its intent to align its future framework with the EQF. Israel participates extensively in EU education and training programmes, notably the international dimension of

Erasmus Plus. Moreover the report to the INQF and EQF will facilitate the integration of immigrants from Europe into the Israeli Higher Education system and market. In higher education, a motive of international contact is to increase the academic quality of the Israeli higher education system and promote Israel as a leading study destination for international talent. Israel's Erasmus plus office reports impact in the country's participating universities especially in revised curricula and teaching and learning methods. In higher education, individual Israeli departments in universities have used Erasmus Plus support to revise programmes in learning outcomes terms.

• Evaluation chart

In the table 1 we enlist the Israeli qualifications (a group of titles or diplomas or certificates which share similar characteristics in level, duration of related programme pathway and level of labour market entry) applicable to admission to higher education and the comparable levels in European Qualifications framework. Both the INQF and EQF are indications of a person's knowledge and skills after having completed a certain programme of study.

Degree of qualification	**INQF**	**EQF level**
Professional Certificate	3	2/3
Teadat Bagrut	4	4
Short Cycle tertiary level / Practical Engineer (holders of professional certificate)	5	5
Bachelor	6	6
Master	7	7
PhD	8	8

NB

EQF: (knowledge / Skills / responsibility and autonomy)

Level 1: Basic general knowledge / Basic skills required to carry out simple tasks / work or study under direct supervision in a structured context.

Level 2: Basic factual knowledge of a field of work or study / Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools / Work or study under supervision with some autonomy.

Level 3: Knowledge of facts, principles, processes and general concepts, in a field of work or study / A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information / Take responsibility for completion of tasks in work or study; adapt own behavior to circumstances in solving problems.

Level 4: Factual and theoretical knowledge in broad contexts within a field of work or study / A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study / Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.

Level 5: Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge / A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems / Exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others.

Level 6: Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles / Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study / Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups.

Level 7: Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields /

Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields / Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.

Level 8: Knowledge at the most advanced frontier of a field of work or study and at the interface between fields / The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice / Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

Professional Certificate: *Attainable via study and apprenticeship combined. The most holders of a Professional Certificate enter the work force.*

Teadat Bagrut: *It is similar to the EQF school leaving certificates. The Teadat Bagrut certifies both general and more technical streams. Bagrut is mandatory for admission to higher education (in addition to Psychrometric Entrance Test (PET) – a test to predict the individual students' chances of success in Higher Education. PET results are leveraged by the Higher Educational Institutions to select students).*

Short Cycle tertiary level: *People with this level of qualification have access to the employment, including direct entry to the labour market on graduation, and progression on to higher education. This level of education is provided by colleges run by the ministries and the government Institute for Technological Training (NITT/MAHAT). The Ministry of Education and Ministry of Labour colleges offer certificates for practical engineers at this level. Paramedical and nursing qualifications are also popular at this level.*

Bachelor's degree (BA/BSc): *Depending on the academic Institutions the BSc programmes in Israel, last 3-4 years. Most full-time Bachelor's study programmes in Europe last also 3 or 4 years (this will be longer if you study part-time). So there is no discrepancy in 1st cycle programs in Israel and Europe.*

Master's degree: Master's programmes offered by Israeli universities vary in length from 1-2 years. In some cases, students can choose between graduation with or without a final thesis. The master's degree grants access in Israel to PhD programmes. Most full-time Master's study programmes in Europe last 1 or 2 years (this will be longer if you study part-time). However in Europe is not necessary to be a MSc program holder in order to continue/ to be accepted for a PhD program.

Doctorate/PhD: In Israel and in Europe PhDs mainly consist of conducting research and writing a dissertation, however in many cases PhD students dedicate some of their time to taking classes (not so often in Europe).

Takeaway message: Both systems follow an 8-level similar qualification system. Israel's higher education qualifications system is comparable, comprising the familiar structure of bachelor's, master's and doctorate (PhD) degrees.

• Quality assurance

In Israel ministries set standards, accredit providers, oversee, and inspect curricula, and measure attainment of individual providers and at national, system-level. The school matriculation certificate, the Bagrut, and the Level 5-equivalent practical engineer certificate are externally assessed.

The general QA framework that is followed in Europe by all the countries have signed the Bologna declaration is the 'Standards and Guidelines of Quality Assurance in the European Higher Education Area (ESG)' that drafted by the European Association for Quality Assurance in Higher Education. Though, the fundamental responsibility for quality continues to rest within the higher education institutions. Internal quality assurance is a duty of the institutions, and the development of an effective "quality culture" is clearly linked with their degree of operational autonomy. External quality assurance fulfils different needs: it combines both accountability for the reassurance of the public by providing information about quality and standards as well as an objective and developmental commentary for institutions. In this respect, the external evaluations are focusing either on study programmes, on institutions or on a combination of both.

Takeaway message: The QA processes are under the responsibility of the Ministry in Israel whereas in European level is mainly responsibility of the Institutions (are encouraged to follow the European Higher Education Area QA principles). As a solution the iPEN project suggests to the European Institutions to follow similar QA process in the same way they have introduced the European Approach for the joint degrees. This will make them more trustworthy to the Israelis.

- ## Use of Learning Outcomes and standards

In Israel there is no definition of qualification; sometimes there are discussions about qualifications in terms of an occupation they typically lead to rather than in terms of a formal certificate (this is the European case) issued for defined outcomes achieved against a standard and after an assessment process.

All the programs in Israel, whether in general, higher, or vocational education, are not yet written in learning outcomes. However, there is voluntary development and use of outcomes in some universities, by teachers and programme managers on an individual basis. But this practice does not yet extend across any one university entirely, far less the whole HE sector.

Takeaway message: In Europe all the programs and qualifications are described on the learning outcomes. In Israel this is not the case. However recently in Israel try to connect the acquired qualification descriptors to learning outcomes. They are experimenting with drafting qualifications descriptors for a limited number of reference qualifications, such as the level 3 professional qualifications and some Level 5 qualifications.

As solution the iPEN project proposes the Israeli site to (a) link the qualifications to occupational standards (very much related to responsibility aspect of the EQF – see above) i.e. documents which describe the tasks and activities carried out in an occupation, and which prescribe performance requirements; or (b) link the qualifications with learning outcomes as a result of a degree has been obtained.

- ## Assessment Systems

The assessment systems used in higher education in Israel may be expressed in numbers, descriptions or letters. Grading systems can differ between institutions, and the system used for bachelor's and master's programmes within a single institution can also vary. Most grading systems run from 60 to 100, with 60 being the lowest possible satisfactory grade. When issuing a Record of Studies, most higher education institutions also provide explanatory notes on the grading system used. Figure 1 shows such a case in one of the iPEN partners, Ben Gurion University.

Ben-Gurion University of the Negev: bachelor	
95-100	Excellent
85-94	Very Good
75-84	Good
65-74	Fair
56-64	Pass
0-55	Fail
56	Passing grade

Ben-Gurion University of the Negev: master	
95-100	A+
85-94	A
75-84	B
65-74	C
0-64	D
65	Passing grade

Figure 1

In Europe different countries using different grading systems. Please check table one to estimate the inhomogeneity of the European grading systems (we picked up only European iPEN partners):

	A (excellent)	B (very good, with few errors)	C (good, with some errors)	D (satisfactory, with many errors)	E (sufficient)
Italy	30	29-30	27-28	24-26	18-23
Germany	1 – 1,5	1,6 – 2,3	2,4 – 2,9	3,0 – 3,5	3,6 – 4,0
Greece	10 – 8,50	6,50 – 8,49	-	-	5,00 – 6,49
Netherlands	10 – 8	7	6 - 7	6-7	5.5

Takeaway message: Using the above tables probably someone can make any conversion from the Israeli Higher Education System to the European ones are used within the iPEN alliance. However a unified one in Europe but also between Europe and Israel will lower the administration workload and will provide more transparency into the two systems.

- ## Credit systems

Credit points indicate the volume of learning required to achieve a HE qualification, making studies and courses easier to understand. Credits acquired at one institution can be counted towards a qualification studied for at another.

In Israel is not mandatory to use credits and there is no nationwide credit system. Some Israeli universities do use credits in some programmes but calculated solely by the number of weekly hours a student will spend in class as part of the course – overall workload is not considered.

In contrast, in Europe and in order to make studies and courses more transparent we have the use of the European Credit Transfer and Accumulation System (ECTS). The ECTS allocated to a module or to a program take into consideration of the student workload including not only the classroom time but also the beyond classroom effort (for study purposes). The ECTS system helps students to move between countries and to have their academic qualifications and study periods abroad recognised. ECTS allows credits taken at one higher education institution to be counted towards a qualification studied for at another. ECTS credits represent learning based on defined learning outcomes and their associated workload. ECTS also helps make other documents, such as the Diploma Supplement, clearer and easier to use in different countries.

60 ECTS credits are the equivalent of a full year of study or work. In a standard academic year, these credits are usually broken down into several smaller modules. A typical 'short cycle qualification' typically includes 90-120 ECTS credits. A 'first cycle' (or bachelor's) degree consists of either 180 or 240 ECTS credits. Usually a 'second cycle' (or master's) degree equates to 90 or 120 ECTS credits. The use of the ECTS at the 'third cycle', or Ph.D. level, varies. ECTS is applied to support student mobility between higher education institutions.

Takeaway message: In Israel there is no national credit system. Some Universities use their own credit system based on the time student spend in the classroom. The European Higher institution use the ECTS to describe their programs and also to facilitate the mobility of students between them.
The iPEN project believes that in order to facilitate the cooperation between the two systems the Israelis must develop a national credit system similar to the ECTS. This will help students from both sites to continue their studies either in Israel or in Europe.

- ## Diploma Supplement

A Diploma Supplement (DS) is issued by a growing number of educational institutions in Israel. For example the Hebrew University was the first Israeli University that in 2019 awarded a DS to its graduate students. The Diploma Supplement is part of an ongoing process of quality assurance and internationality and assists the Hebrew University graduates in the continuation both of the academic and professional careers and in the job market in Israel and abroad.

In European Higher Educational Area the Diploma Supplement is designed as an aid to support the recognition of academic qualifications. The Diploma Supplement is an important tool of the European Higher Education Area for graduates to ensure that their degrees are recognized by higher education institutions, public authorities and employers in their home countries and abroad. It does, however, not represent a Curriculum Vitae or a substitute for the original qualification. The Diploma Supplement contains eight sections providing information regarding:

- the holder of the qualification
- the qualification type and its originating institution
- the qualification level
- the content of the course and results gained
- function of the qualification
- certification of the supplement
- details of the national higher education system concerned

The Diploma Supplement renders qualifications and programmes of study more easily comparable for students between countries across Europe. It offers a detailed description of the studies completed and provides an indication of the competences acquired to complete the course. The supplement may also facilitate access to its holders to employment and further study opportunities abroad by boosting the recognition of academic qualifications by both higher education institutions and employers internationally. For higher education institutions, it offers enhanced recognition of the academic qualifications they provide. It improves the visibility of institutions, both by other higher education institutions and employers. The supplement also helps safeguard the institutional autonomy of higher education institutions by providing a common framework for the recognition of academic qualifications and helps to reduce the administrative burden faced by many institutions.

Takeaway message: It is obvious that the incorporation of the DS into the Israeli Institutions will help the collaboration (e.g. student exchange) between the Israeli and European Higher Education Area Institutions since all the acquired knowledge will be registered and be credited. This is not the case right now. From the iPEN partners none of the partners incorporate this tool.

Important Lessons and Proposed Actions – Conclusions

Although research in Israel has traditionally been very international, internationalization in higher education is a relatively new field here, but one that is rapidly developing. The motivation and overall objective of this national internationalization policy is to increase the academic quality of the Israeli higher education system and promote Israel as a leading study destination

for international talent. The Israeli academic environment must become more international by bringing in top students and researchers from all over the world, in order to develop international competency for Israeli students, increase 'brain circulation' and further academic and research collaboration. Already actions such as the launching of a new brand 'Study in Israel – Engage Excellence' attempts to increase the number of international students in Israel over the next five years, as wells as increasing outgoing student mobility and academic collaborations. the majority of Israeli higher education institutions now consider internationalisation as one of their top five priorities.

The incorporation of European Higher Education Area tools will boost the internationalization of the Israeli Universities. Tools such as (a) national credit system that is linked with the ECTS system; (b) the use of the Diploma supplement; (c) the link of all the Israeli programs with the learning outcomes offer; and (d) the implementation and application of the INQF, will sky rocket the collaboration level between the Israeli Higher Education Institutes with the European ones.