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### AN OVERVIEW OF THE TECHNICAL EDUCATION IN GREECE

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#### **0. ABSTRACT**

The purpose of this paper is the presentation of the Technical Education in Greece. The Ministry of National Education and Religious Affairs is responsible for programming the educational policies and providing all the financial support to all institutions. The Institutions are divided into two types, the Universities (A.E.I.) and the Technological Education Institutions (T.E.I.). There are also a few other institutions which are recognised as institutions belonging to higher education but there are not classified as A.E.I. or T.E.I. being supervised by other Ministries than the Ministry of Education and Religious Affairs. The T.E.I. clearly differ from the A.E.I. (University institutions of higher education) as regards both their role and orientation as well as that of the subjects and the qualifications they offer. An overview of all the Greek Technical Universities (A.E.I.) and the Technological Education Institutions (T.E.I.) are presented.

#### **1. SECONDARY EDUCATION IN GREECE**

Admission to Higher Education Institution is only permitted to persons that have successfully finished their secondary education studies. A short description of the Greek system for secondary education is described in order to provide the necessary information. Secondary education in Greece comprises the Gymnasium and Lyceum. **The Gymnasium** (first cycle of secondary education) lasts three years and is compulsory for all Greeks. The students graduated from the six-year primary education system enter Gymnasium without entrance examinations. On graduation, the students are awarded the <u>Gymnasium Leaving Certificate</u> [1, 2].

**Lyceum** constitute the second cycle of secondary education. The holders of the Gymnasium Leaving Certificate may enter Lyceum without taking further examinations. This cycle lasts three years and is non-compulsory. The following types of Lyceum generally exist:

a) **General Lyceum.** All students are taught the same subjects during the first two years. The thirdyear students follow a core programme of general education lasting 10 hours per week and receive 20 hours of specialised instruction in one of the four <u>streams</u> of preparatory subjects designated as streams A, B, C and D. Upon successful completion of their written examinations, they may gain entry into the relevant faculty or department at an institution of higher education. The following subjects are included in each of these four streams: Stream A: Essay, Mathematics, Physics, Chemistry. Stream B: Essay, Physics, Chemistry, Biology. Stream C: Essay, Ancient Greek, History, Latin. Stream D: Essay, Mathematics, History, Economics [1, 2]. b) **Technical - Vocational Lyceum (T.E.L.)** The studies at the T.E.L. last three years for day-time students and four years for students attending evening courses at Evening Lyceum. Each T.E.L. may consist of a number of <u>specialised departments</u>. These technical vocational Lyceum combine a general education together with professional training. After their second year, the students may select to continue for obtaining either the <u>Specialised Qualification</u> which will enable them to be employed immediately or the <u>Lyceum Leaving Certificate</u> which will enable them to a continuation of their studies at the level of Higher Education. Streams A, B and D are offered at the T.E.L. and holders of the Lyceum Leaving Certificate may continue their studies at Institutions of Higher Education (Universities and T.E.I.) [1, 2].

c) Unified Multi-disciplinary Lyceum (E.P.L.). The E.P.L. were introduced and stipulate a three year course of studies. They provide a unified general education and technical-vocational training and offer all students the possibility of a balanced development of their potential and the cultivation of their interests and skills so that they can participate in the production process and the economic development of the country. In the first year, all students are taught the same subjects, although they are free to follow elective courses in their spare time. In the second year, an E.P.L. is split into <u>study</u> cycles and in the third year it is split into <u>branches</u>. All students are taught core subjects during these two years, along with the corresponding cycle and branch subjects.

The cycles lay the foundations and provide a preparatory instruction for higher education. The branches enable the students to:

- continue their studies at institutions of higher education (A.E.I. and T.E.I.) by including the preparatory subjects corresponding to each stream in their curriculum being followed.
- exercise their profession (via -prevocational training branches) obtain a specialised diploma after studying for one extra year in a specialised department open to graduates of these schools.
- The graduates of all branches are awarded the Lyceum Leaving Certificate. The stream branches A, B and D at the E.P.L. particularly reflect Greece's need to promote research and knowledge in both the scientific and technological sectors [1-3].

d) Classical Lyceum There exist a few classical Lyceum which aim to promote studies of the classics.

e) **Special Types of Lyceum** A number of specialised Lyceum also exist such as the **Lyceum for Religious** studies that operate under the provisions of a Presidential Decree, **Lyceum for Athletics** and **Lyceum for Music**. These Lyceum may be introduced in several cities in the country and cover the educational needs of persons living in a wider geographical area.

In Greece, a quota (numerus clausus) policy is applied in all Higher Education Institutions for admission purposes. Those wishing to enter higher education in Greece participate in general examinations which are held each year in the second half of June. Students who have received the Lyceum Leaving Certificate or an equivalent High School Leaving Certificate abroad or an European Baccalaureate have the right to participate into these general examinations. These examinations are called <u>General Panhellenic Examinations</u>, and are common to all Universities and T.E.I. of the country . In March every year all prospective applicants complete the appropriate application forms on which they list the Higher Education Institutions and departments of their choices (A.E.I. and T.E.I.).

Candidates' entry into higher education institutions is made-up to fulfilment of the respective quotas and it is decided on the basis of their marks obtained and their stated preference with regard to the faculties in which they wish to enrol. Their overall grades (marks) are based on the sum of their marks obtained after examinations in four general subjects. Three of these subject carry an equal weight 0.95 in the grading process and one 1.15 which is the more important subject for each course of study ( i e. for medicine sector the subject of Biology, for Computer studies the subject of Mathematics ect). The paper for each subject examined is considered by two independent examiners. The grade given to each paper has a scale between 0-80. The final mark of the candidate for each subject is the sum of the marks given by the two examiners [1, 2].

The examination subjects vary according to the four streams of studies followed in the respective program at Lyceum which permit the admittance of students to the respective faculties of the higher education institutes. Each candidate is obliged to select all the subjects of one of the four streams described previously. In several departments, besides the basic examinations in general subjects, the candidate is also examined in specific subjects. Thus, for example for Tourism Business departments, foreign language examination is necessary (English or French or Italian or German ).

In addition to the quota entrants, each department accepts a number of foreign students, Greeks living abroad, scholarship recipients, etc. The respective candidates take part different general examinations, which are held each year in September. A numerous clausus policy is also applied with various percentage quotas while the examination procedure and the contents of courses examined are identical to that of the normal general examinations. The actual number of candidates admitted in each department of A.E.I.'s and T.E.I.'s for all the above mentioned categories are decided each year by the Ministry of National Education and Religious Affairs.



Fig. 1. Geographical Location of the Institutions of Higher Education in Greece

#### 2. HIGHER EDUCATION IN GREECE

<u>The Institutions of Higher Education</u> are legal establishments which operate under Public Law and they are fully self-governed. The operation of private Higher Education Institutions is not permitted in Greece. The Higher Education Institutions act under the supervision of the State, are financially supported by it and operate under laws which determine their status. The self-governing status means that the Higher Education Institutions have the right to elect their own executive bodies and to decide on the handling of their own affairs under State supervision, which is the Ministry of National Education and Religious Affairs [1-5].

The Ministry of National Education and Religious Affairs is responsible for programming the educational policies and providing all the financial support to all institutions. The Institutions are divided into two types, the Universities (A.E.I.) and the <u>Technological Education Institutions</u> (T.E.I.). There are also a few other institutions which are recognised as institutions belonging to higher education but there are not classified as A.E.I. or T.E.I. being supervised by other Ministries than the Ministry of Education and Religious Affairs.

While Universities give emphasis on the advancement and the development of science, on research and on advanced theoretical knowledge, the T.E.I. are oriented towards the absorption and subsequent transfer of scientific knowledge into practice, and as such, constitute an autonomous and individual entity in the educational system.

The undergraduate degree in the departments of Technical Universities is a 5 years course leading to a Diploma in Engineering. The undergraduate degree in the Departments of Technological Education Institutions is a 3 years course leading to a Ptyxio in Engineering.

#### 2.1. TECHNOLOGICAL EDUCATION INSTITUTIONS (T.E.I.)

The T.E.I. provides the theoretical and practical education necessary for the application of scientific, technological, artistic or of any other form of knowledge and skills in the various professions. They contribute to the professional guidance of the young people and hope to be instrumental in creating responsible citizens, capable to function as application professionals in the social, economic and cultural

development of the nation. They maintain a close liaison with industry, commerce and other organised branches of the economy in their area, they serve the demand for further education of graduates and are able to meet the ever increasing organisations' training needs. T.E.I. departments participate also in various research programs on topics of applied technology [2, 6].

The Technological Educational Institutions form part of higher education just as universities are. The T.E.I. clearly differ from the A.E.I. (University institutions of higher education) as regards both their role and orientation as well as that of the subjects and the qualifications they offer. Especially, they aim to:

- a) provide sufficient theoretical and practical training to enable the application of scientific, technological, artistic and other knowledge and skills to the professions concerned;
- b) educate responsible citizens, capable of contributing to the democratic process, the economy, the social fabric and the cultural development of the country;
- c) profit from each Greek citizen's right to free education, according to their inclinations as provided for by law.

With this objective in mind, the T.E.I.:

• contribute to the professional training both of their students and of young people in general;

- maintain close links with the relevant production units and with the organised branches of their regional economies; collaborate
- with each other or with other educational or technical institutions, bodies or services in Greece and abroad, with a view to
- achieving the above aim; fulfil their graduates' need for continuous education and training and provide a life-long educational
- opportunity for the Greek people;
- inform the public about the degree of achievement of these goals;
- co-ordinate their aspirations with those of the A.E.I. as provided for in Act 1268/1983 [4] in a joint effort towards independent economic
- development of the country;
- Participate in research programmes in National or International topics concerned with technological applications.

Each T.E.I. comprises at least of two <u>Faculties</u> (Schools) which are subdivided into <u>Departments</u>. The Department is the main academic unit and it offers study into a specific scientific technological field leading to a specific Degree called Degree of Technological Education. In each Department there are <u>sub-units</u> (sections) called <u>Subject Groups</u> dealing with specific matters common in group of subject areas of the curriculum.

The faculties of the T.E.I. include among others [2]:

- 1. Graphic Arts and Graphic Design
- 2. Management and Administration
- 3. Health Care Professions
- 4. Applied Technology
- 5. Food and Nutrition Technology
- 6. Agricultural Technology

The staff of each Department (teaching and applied research) is classified as follows:

- Professors
- Assistant Professors
- Laboratory Professors

Professors and Assistant Professors hold a doctoral degree (Ph.D.), and Laboratory Professors a University Degree or T.E.I Degree and a Post graduate Degree (MSc or MA) plus sufficient experience on the specific subject of study.

Nowadays there are 14 T.E.I.'s located in various parts of Greece and many of them have subsidiary campuses in neighbouring cities (Fig. 1) [2]. The faculty of Applied Technology is found in most T.E.I.'s and includes the following department according to each city (Table 1):

- 1. **T.E.I. of Athens** has been established in 1974. Its faculty of Applied Technology is divided in nine departments [2]:
  - Department of Energy Technology with a staff of 25 full-time and 13 part-time persons. The total number of students is 700.
  - Department of Electronics Technology with a staff of 40 full-time and 8 part-time persons. The total number of students is 850.
  - Department of Shipbuilding Technology with a staff of 20 full-time and 0 part-time persons. The total number of students is 600.
  - Department of Informatics with a staff of 28 full-time and 53 part-time persons. The total number of students is 9000.
  - Department of Civil Works Technology with a staff of 38 full-time and 3 part-time persons. The total number of students is 850.

- Department of Medical Instrument Technology with a staff of 20 full-time and 6 part-time persons. The total number of students is 800.
- Department of Topography with a staff of 25 full-time and 12 part-time persons. The total number of students is 1200.
- General department of Mathematics with a staff of 14 full-time and 0 part-time persons.
- General department of Physics Chemistry & Material Sciences with a staff of 29 full-time and 31 part-time persons.
- 2. **T.E.I. of Pireas** has been established in 1974. Its faculty of Applied Technology is divided in ten departments [2, 7]:
  - Department of Automation with a staff of 20 full-time and 34 part-time persons. The total number of students is 580.
  - Department of Electrical Engineering with a staff of 24 full-time and 18 part-time persons. The total number of students is 1310.
  - Department of Electronics Technology with a staff of 28 full-time and 20 part-time persons. The total number of students is 972.
  - Department of Electronic Computer Systems with a staff of 14 full-time and 44 part-time persons. The total number of students is 930.
  - Department of Textile Engineering Technology with a staff of 12 full-time and 23 part-time persons. The total number of students is 624.
  - Department of Mechanical Engineering with a staff of 19 full-time and 47 part-time persons. The total number of students is 1326.
  - Department of Civil Engineering Technology with a staff of 31 full-time and 26 part-time persons. The total number of students is 1388.
  - Department of General Courses (Mathematics) with a staff of 26 full-time and 58 part-time persons.
  - Department of General Courses (Physics, Chemistry & Material's Technology) with a staff of 18 full-time and 49 part-time persons.
  - Department of General Courses (Languages & Physical Education) with a staff of 7 full-time and 18 part-time persons.
- 3. **The T.E.I. of Thessaloniki** was founded on 1983 and currently has a student population of about 18,000, ranking at the fourth position among the Greek Educational Establishments. The faculty
  - of Applied Technology of T.E.I. is divided in six departments [2, 8]:
    - Department of Information Technology with a staff of 16 full-time and 36 part-time persons. The total number of students is 700.
    - Department of Automation with a staff of 28 full-time and 6 part-time persons. The total number of students is 418.
    - Department of Electronics with a staff of 21 full-time and 22 part-time persons. The total number of students is 1200.
    - Department of Vehicle Technology with a staff of 16 full-time and 4 part-time persons. The total number of students is 700.
    - Department of Civil Works Technology with a staff of 33 full-time and 6 part-time persons. The total number of students is 823.
    - General Department (Applied Sciences) with a staff of 32 full-time and 45 part-time persons.

# 4. T.E.I. of Patra has been established in 1974. Its faculty of Applied Technology is divided in three

departments [2, 9]:

- Department of Electrical Engineering with a staff of 23 full-time and 20 part-time persons. The total number of students is 650.
- Department of Mechanical Engineering with a staff of 20 full-time and 31 part-time persons. The total number of students is 836.

- Department of Civil Works Technology with a staff of 27 full-time and 24 part-time persons. The total number of students is 650.
- 5. **T.E.I. of Iraklio** (and Branch of Chania) has been established in 1974. Its faculty of Applied Technology is divided in five departments [2, 10]:
  - Department of Electrical Engineering with a staff of 15 full-time and 22 part-time persons. The total number of students is 572.
  - Department of Mechanical Engineering with a staff of 15 full-time and 20 part-time persons. The total number of students is 713.
  - Department of Civil Engineering with a staff of 17 full-time and 26 part-time persons. The total number of students is 534.
  - Department of Electronics (Annexe of Chania) with a staff of 12 full-time and 45 part-time persons. The total number of students is 468.
  - Department of General Science with a staff of 21 full-time and 48 part-time persons.
- 6. **T.E.I. of Chalkida** has been established in 1983. Its faculty of Applied Technology is divided in three departments [2, 11]:
  - Department of Electrical Engineering with a staff of 9 full-time and 42 part-time persons. The total number of students is 918.
  - Department of Mechanical Engineering with a staff of 9 full-time and 39 part-time persons. The total number of students is 977.
  - General Department of Applied Sciences with a staff of 10 full-time and 28 part-time persons.
- 7. **T.E.I. of Lamia** (and Branch of Karpenissi) has been established in 1994. Its faculty of Applied Technology is divided in three departments [2]:
  - Department of Electrical Engineering with a staff of 11 full-time and 14 part-time persons. The total number of students is 439.
  - Department of Electronics Technology with a staff of 9 full-time and 42 part-time persons. The total number of students is 521.
  - Department of General Courses (Foreign Languages & Physical Education with a staff of 3 full-time and 13 part-time persons.
- 8. **T.E.I. of Larissa** (and Branch of Karditsa) has been established in 1974. Its faculty of Applied Technology is divided in four departments [2, 12]:
  - Department of Electrical Engineering with a staff of 20 full-time and 16 part-time persons. The total number of students is 846.
  - Department of Mechanical Engineering with a staff of 20 full-time and 11 part-time persons. The total number of students is 705.
  - Department of Civil Works Engineering with a staff of 18 full-time and 6 part-time persons. The total number of students is 670.
  - General Department of Applied Sciences (Mathematics, Physics, Chemistry) with a staff of 14 full-time and 58 part-time persons.
- 9. T.E.I. of Kavala (and T.E.I Branch of Drama) has been established in 1976. Its faculty of Applied

Technology is divided in three departments [2, 13]:

- Department of Electrical Engineering with a staff of 16 full-time and 38 part-time persons. The total number of students is 667.
- Department of Mechanical Engineering with a staff of 16 full-time and 36 part-time persons. The total number of students is 700.
- Department of Petroleum Technology with a staff of 9 full-time and 18 part-time persons. The total number of students is 500.
- Department of General Science with a staff of 15 full-time and 24 part-time persons.

10. **T.E.I. of Serres** has been established in 1979. Its faculty of Applied Technology is divided in two

departments [2, 14]:

- Department of Mechanical Engineering with a staff of 15 full-time and 43 part-time persons. The total number of students is 700.
- Department of Civil Engineering Technology with a staff of 10 full-time and 42 part-time persons. The total number of students is 1020.
- 11. **T.E.I. of Kozani** (and Branches of Florina and Kastoria) has been established in 1976. Its faculty

of Applied Technology is divided in four departments [2, 15]:

- Department of Electrical Engineering with a staff of 11 full-time and 12 part-time persons. The total number of students is 730.
- Department of Mechanical Engineering with a staff of 9 full-time and 19 part-time persons. The total number of students is 720.
- Department of Industrial Design with a staff of 0 full-time and 8 part-time persons. The total number of students is 180.
- General Department of Applied Sciences with a staff of 12 full-time and 19 part-time persons.
- 12. **T.E.I. of Kalamata** has been established in 1990 and has not faculty of Applied Technology [16]
- 13. **T.E.I. of Messolongi** has been established in 1983 and has not faculty of Applied Technology [17].
- 14. **T.E.I. of Epirus** and Branch of Ioannina and Igumenitsa has been established in 1994 and has not

faculty of Applied Technology [18].

#### 2.2. TECHNICAL UNIVERSITIES (A.E.I.)

Greek Universities are divided into <u>Schools</u> which are subdivided into <u>Departments</u>. Each Department is responsible for its curriculum, research, financial administration, and the election of its teaching and research personnel. Diplomas for each specialisation are awarded by the individual Department. Two or more department into a common knowledge area could make a Scholl. There is also a service Department, which belongs to the School, and is responsible for teaching general courses in Mathematics, Physics and Mechanics for the School of Engineering. This Department does not award any degree.

The Departments are divided into <u>Divisions</u> which co-ordinate the educational and research activities relevant to the specific field covered by the Section. According to the law, each Department is governed by the Chairman, the General Assembly and the Council. The <u>Chairman</u> of the Department is elected with a two-year mandate. The members of the <u>General Assembly</u> are the faculty from all the Divisions of the Department and representatives from the student body. The Council of the Department consists of the Chairman and the <u>Directors of the Divisions</u> together with representatives from the student body and technical personnel. In every Section, the decisions are taken by its General Assembly, which is chaired by the Director of the Section, who is elected with one-year mandate. The members of the General Assembly are the faculty of the Division and representatives from the student body.

Four levels of faculty members comprise the academic body: <u>Professors</u>, <u>Associate Professors</u>, <u>Assistant Professors</u> and <u>Lecturers</u>. All faculty members hold Ph.D. degrees. The faculty is assisted by teaching associates, research assistants and Ph.D. candidates. The technical and administrative support is the responsibility of special staff which is allocated to the Sections [1, 19, 20].

Nowadays there are 6 A.E.I.'s located in various parts of Greece (Fig. 1) that have Engineering Departments Only two of them are Technical Universities. The other four are Universities that have School of Engineering [1]. These Universities and departments are (Table 2):

- 1. The National Technical University of Athens (N.T.U.A) was founded in 1836. It has at present a teaching and research staff of approximately 700 members, all holding doctorates (Professors, Associate Professors, Assistant Professors and Lecturers). The total number of University employees is over than 1400. It has a total enrolment of approximately 8.000 undergraduate and 1.600 graduate students. Following the last radical reform, by Law 1268/1982 [4] N.T.U.A is divided into nine Departments. Eight of these award diplomas as follows [19]:
  - Department of Architecture,
  - Department of Chemical Engineering,
  - Department of Civil Engineering,
  - Department of Electrical and Computer Engineering,
  - Department of Mechanical Engineering,
  - Department of Mining and Metallurgical Engineering,
  - Department of Naval Architecture and Marine Engineering,
  - Department of Rural and Surveying Engineering.
  - The ninth Department of General Sciences, which provides foundation courses to support the curriculum of the other Departments.
- 2. The Aristotle University of Thessaloniki (A.U.Th.) was established in 1925 and is now the major University of the country. The A.U.Th. now consists of eight Schools: Theology, Philosophy, Law and Economics, Natural Sciences, Agricultural and Veterinary Sciences, Medical and Pharmaceutical Sciences, Engineering, and Arts. The number of students is about 70.000 in 41 Departments that cover the full range of scientific disciplines -some of them unique in Greece. Every year the Ministry of Education defines the number of new students to be admitted to each School. These students are enrolled after successfully passing the admission examinations contacted at a National level. The teaching and research staff consists of over 480 professors, 540 associated professors, 650 assistant professors, 280 lecturers, and 700 teaching and research assistants. There are also over 720 special technical personnel and 750 administrative personnel. Because of its size, structure and activities the University of Thessaloniki is the largest and most complex of Greek institutions of higher education. The School of Engineering comprise from six self-administered Departments of Engineering studies [20]:
  - Department of Architecture,
  - Department of Chemical Engineering,
  - Department of Civil Engineering,
  - Department of Electrical and Computer Engineering,
  - Department of Mechanical Engineering,
  - Department of Rural and Surveying Engineering.
- 3. **The University of Patras** was founded in 1964 and it started functioning in the academic year of 1966-67. It was the third institution of tertiary education to be created in Greece and is now the third largest in the country. The initial orientation of the University was towards science and technology with the first departments to be established were Biology, Mathematics, Physics, and Chemistry, followed shortly by Electrical Engineering and Mechanical Engineering. Over the years the number of departments have grown to 18, and the academic orientation of the institution has been balanced by the creation of Schools of Health Sciences and of Humanities and Social Sciences. Most departments include several academic divisions, so that in fact the range of

academic disciplines is even greater than those apparent at first sight. The School of Engineering comprise from six self-administered Departments of Engineering studies [21]:

- Department of Chemical Engineering,
- Department of Civil Engineering,
- Department of Computer Engineering and Informatics,
- Department of Electrical and Computer Engineering,
- Department of Mechanical Engineering,
- The sixth Department of Engineering Sciences, was created to provide instruction in certain topics required by more than one engineering department such as Mathematics and Physics. As such it does not offer a first degree (Diploma), but it does offer Ph.D. degrees.
- 4. **The Democritus University of Thrace** was founded in 1973. About 7,500 students are enrolled at the 11 departments of the University located at the three neighbouring cities, Xanthi, Komotini and Alexandroupolis. The central administration is situated in Komotini. The School of Engineering which is situated in Xanthi is divided into three departments [22]:
  - Department of Civil Engineering,
  - Department of Electrical and Computer Engineering,
  - Department of Environmental Engineering,
- 5. The University of Thessaly is a new University, situated in Central Greece. It was established in 1983. It has a decentralised structure with campuses located at four cities in Central Greece (Volos Larisa Trikala Karditsa). The seat of the University is the city of Volos. The University has about 150 university teachers (academic staff), almost 1.700 students and about 150 employees (administrative, technical and education-assisting staff). The university offers nine degree programmes and several individual courses. At the present time three Schools and ten Departments are operating. The School of Technological Sciences which is situated in Volos is divided into four departments [23]:
  - Department of Agriculture, Crop and Animal Production,
  - Department of Civil Engineering,
  - Department of Mechanical and Industrial Engineering,
  - Department of Planning and Regional Development,
- 6. The Technical University of Crete, the second Technological University in the country, was established in Chania in 1977 and accepted the first undergraduate students in October 1984. The philosophy underlining its establishment is the cultivation and evolution of studies and research in advanced technologies, as well as the creation of a highly scientific quality centre closely cooperating with industry and other production units in the country. The purpose of the institution is to conduct research and teach in new engineering fields, as well as to develop links with Greek industry. The staff is composed of 50 full-time professors, 50 adjunct professors, 40 laboratory assistants, and 50 administrative employees. The institution also cooperates with the teaching staff and researchers of other universities and industry. The school has a total enrolment of approximately 800 undergraduate and 110 graduate students. There are five departments in the Technical University of Crete. The first five are degree grading [24].
  - Department of Production Engineering and Management
  - Department of Mineral Resources Engineering
  - Department of Electronic Engineering and Computer Engineering
  - Department of Environmental Engineering
  - Department of Sciences

| T.E.I. of | Α | Р | Т | Р | Ι | С | L | L | K | S | K |
|-----------|---|---|---|---|---|---|---|---|---|---|---|
|           | Т | Ι | Н | Α | R | Н | Α | Α | Α | Ε | 0 |
|           | Н | R | Ε | Т | Α | Α | Μ | R | V | R | Ζ |
|           | Ε | E | S | R | K | L | Ι | Ι | Α | R | Α |

| DEPARTMENTS                   | N<br>S | A<br>S | S<br>A<br>L<br>O<br>N<br>I<br>K<br>I | A | L<br>I<br>O | K<br>I<br>D<br>A | A | S<br>S<br>A | LA | E<br>S | N<br>I |
|-------------------------------|--------|--------|--------------------------------------|---|-------------|------------------|---|-------------|----|--------|--------|
| Automation                    |        | 0      | 0                                    |   |             |                  |   |             |    |        |        |
| Civil Works Technology        | 0      |        | 0                                    | 0 |             |                  |   | 0           |    |        |        |
| Civil Engineering Technology  |        | 0      |                                      |   | 0           |                  |   |             |    | 0      |        |
| Electrical engineering        |        | 0      |                                      | 0 | 0           | 0                | 0 | 0           | 0  |        | 0      |
| Electronic Computer System    |        | 0      |                                      |   |             |                  |   |             |    |        |        |
| Electronics Technology        | 0      | 0      | 0                                    |   | 0           |                  | 0 |             |    |        |        |
| Energy Technology             | 0      |        |                                      |   |             |                  |   |             |    |        |        |
| Industrial Design             |        |        |                                      |   |             |                  |   |             |    |        | 0      |
| Informatics                   | 0      |        |                                      |   |             |                  |   |             |    |        |        |
| Information Technology        |        |        | 0                                    |   |             |                  |   |             |    |        |        |
| Mechanical Engineering        |        | 0      |                                      | 0 | 0           | 0                |   | 0           | 0  | 0      | 0      |
| Medical Instrument Technology | 0      |        |                                      |   |             |                  |   |             |    |        |        |
| Petroleum Technology          |        |        |                                      |   |             |                  |   |             | 0  |        |        |
| Shipbuilding Technology       | 0      |        |                                      |   |             |                  |   |             |    |        |        |
| Textile                       |        | 0      |                                      |   |             |                  |   |             |    |        |        |
| Topography                    | 0      |        |                                      |   |             |                  |   |             |    |        |        |
| Vehicle Technology            |        |        | 0                                    |   |             |                  |   |             |    |        |        |
| General Department            | 0      | 0      | 0                                    |   |             | 0                | 0 | 0           | 0  |        | 0      |

Table 1. Departments of Technological Education Institutions

| UNIVERSITY of                             | A | Т | Р | Т | Т | С |
|---|---|---|---|---|---|---|
|   | Т | Н | A | Н | Н | R |
|   | Н | Е | Т | R | Е | E |
|   | Е | S | R | Α | S | Т |
|   | Ν | S | А | K | S | Е |
|   | S | Α |   | Е | Α |   |
|   |   | L |   |   | L |   |
|   |   | 0 |   |   | Y |   |
|   |   | Ν |   |   |   |   |
|   |   | Ι |   |   |   |   |
|   |   | K |   |   |   |   |
| DEPARTMENTS                               |   | Ι |   |   |   |   |
| Architecture                              | 0 | 0 |   |   |   |   |
| Chemical Engineering                      | 0 | 0 | 0 |   |   |   |
| Civil Engineering                         | 0 | 0 | 0 | 0 | 0 |   |
| Computer Engineering and Informatics      |   |   | 0 |   |   |   |
| Electrical and Computer Engineering       | 0 | 0 | 0 | 0 |   |   |
| Electronic and Computer Engineering       |   |   |   |   |   | 0 |
| Environmental Engineering                 |   |   |   | 0 |   | 0 |
| Mechanical and Industrial Engineering     |   |   |   |   | 0 |   |
| Mechanical Engineering                    | 0 | 0 | 0 |   |   |   |
| Mineral Resources Engineering             |   |   |   |   |   | 0 |
| Mining and Metallurgical Engineering      | 0 |   |   |   |   |   |
| Naval Architecture and Marine Engineering | 0 |   |   |   |   |   |
| Planning and Regional Development         |   |   |   |   | 0 |   |
| Production Engineering and Management     |   |   |   |   |   | 0 |
| Rural and Surveying Engineering           | 0 | 0 |   |   |   |   |
| General Science                           | 0 |   | 0 |   |   | 0 |

Table 2. Departments of Technological Universities

#### REFERENCES

- 1. Ministry of National Education & Religious Affairs, (www.ypepth.gr)
- 2. Technical Institute of Athens, (www.Teiath.gr).
- 3. Act 1566/1985 of Hellenic Republic.
- 4. Act 1268/1982 of Hellenic Republic.
- 5. Act 1404/1983 of Hellenic Republic.
- 6. T. Papatheodosiou: «Technological Education and employment centralised to the Faculty of Applied Technology» ISBN 960-7121-02-3 in Greek
- 7. Technical Institute of Piraeus, (www.Teipei.gr).
- 8. Technical Institute of Thessaloniki, (www.Teithe.gr).
- 9. Technical Institute of Patras, (www.Teipat-gw.Teipat.gr).
- 10. Technical Institute of Heraklion, (www.cs.Teiher.gr).
- 11. Technical Institute of Chalkida, (www.Teihal.gr).
- 12. Technical Institute of Larisa, (www.Teilar.gr).
- 13. Technical Institute of Kavala,(www.Teikav.gr).
- 14. Technical Institute of Serres, (www.Teiser.gr).
- 15. Technical Institute of Kozani, (www.Teikoz.gr).
- 16. Technical Institute of Kalamata, (www.Teikal.gr).
- 17. Technical Institute of Messologi, (www.Teimes.gr).
- 18. Technical Institute of Epirus, (www.Teiep.gr).
- 19. National Technical University of Athens, (www.ntua.gr).
- 20. Aristotle University of Thessaloniki, (www.auth.gr).
- 21. University of Patras, (www.upatras.gr).
- 22. Democritus University of Thrace (www.duth.gr).
- 23. University of Thessaly (www.uth.gr).
- 24. Technical University of Crete (www.tuc.gr).