

ALEXANDER TECHNOLOGICAL EDUCATIONAL INSTITUTE OF THESSALONIKI SCHOOL OF TECHNOLOGICAL APPLICATIONS

# UNDERGRADUATE PROSPECTUS



# Department of Civil Infrastructure Engineering

## Thessaloniki 2012



ΥΠΟΥΡΓΕΙΟ ΕΘΝΙΚΗΣ ΠΑΙΔΕΙΑΣ ΚΑΙ ΘΡΗΣΚΕΥΜΑΤΩΝ Ειδική υπηρεσια διαχειρισής επελεκ

> **ΕΥΡΩΠΑΪΚΗ ΕΝΩΣΗ** ΣΥΓΧΡΗΜΑΤΟΔΟΤΗΣΗ ΕΥΡΩΠΑΪΚΟ ΚΟΙΝΩΝΙΚΟ ΤΑΜΕΙΟ



Η ΠΑΙΔΕΙΑ ΣΤΗΝ ΚΟΡΥΦΗ Επιχειρησιακό Πρόγραμμα Εκπαίδευσης και Αρχικής Επαγγελματικής Κατάρτισης

## ALEXANDER TECHNOLOGICAL EDUCATIONAL INSTITUTE OF THESSALONIKI



## UNDERGRADUATE PROSPECTUS

## **DEPARTMENT OF**

## **CIVIL INFRASTRUCTURE ENGINEERING**

P.O. Box 141 GR 57400 Thessaloniki URL: http://www.cie.teithe.gr e-mail: cie@cie.teithe.gr





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## **TABLE OF CONTENTS**

	page
1. SHORT HISTORICAL RETROSPECTION	4
2. LEGAL AND INSTITUTIONAL FRAMEWORK OF OPERATION	5
3. USEFUL INFORMATION FOR STUDENTS	9
3.1 GENERAL	9
A. LIBRARY 3.2 STUDENTS' WELFARE	9
	9 9
A. I.K.Y. SCHOLARSHIPS B. LOANS	9
C. BOOKS AND COURSE NOTES	
D. FEEDING	9 9
E. ACCOMMODATION – HALLS OF RESIDENCE	9
F. HEALTH CARE	9
G. ARMY DUTY	9 10
H. REDUCED - PRICED TICKETS (PASO)	10
I. CULTURAL AND SOCIAL ACTIVITIES	10
3.3 INSTITUTIONAL INTERCONNECTIONS WITH SOCIETY AND	10
KNOWLEDGE	10
1. EMPLOYMENT AND CAREERS CENTRE	10
2. INTERNATIONAL EDUCATIONAL PROGRAMMES OFFICE	10
3. INFORMATION NETWORKS (G.U.net)	10
	11
4. DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING	12
4.1.HISTORICAL REVIEW	13
4.2.GENERAL INFORMATION	13
A. ADMINISTRATION	13
B. TEACHING STAFF	15
GEOTECHNICAL ENGINEERING AND TRANSPORT	
INFRASTRUCTURE SECTION	15
STRUCTURES SECTION	15
HYDRAULICS AND ENVIRONMENTAL ENGINEERING	
SECTION	16
C. COLLABORATING STAFF FROM OTHER DEPARTMENTS	16
D. DEPARTMENTAL SECRETARY	16
E. TEACHING STAFF PREVIOUSLY SERVED THE	
DEPARTMENT	16
	10
5. ACADEMIC COURSE REQUIREMENTS	18
5.1 GENERAL INFORMATION	18
5.2 DEPARTMENTAL GRADUATES 5.3 OBJECTIVES	19 19
5.4 COURSE STRUCTURE	19 19
5.5 COURSE SCHEDULE	19 21
5.6 DISTRIBUTION OF COURSES PER SECTION	21 24
5.7 COURSE SYLLABUS	24 25
J.I COURSE STELADUS	23
6. DEGREE ANNEX	40
7. USEFUL TELEPHONES AND ADDRESSES	46
8. MAPS AND DIRECTIONS	48
MEMORANDUM	49

#### 1. SHORT HISTORICAL RETROSPECTION

The Alexander Technological Educational Institute of Thessaloniki (A.T.E.I.TH.) is one of the Greek Technological Educational Institutes (T.E.I), which constitute part of the Highest Educational level in Greece. A.T.E.I.TH is a legal entity operating autonomously under the monitoring of the Greek State through the Minister of Education and Religious Affairs.

Following the law under which the Greek T.E.I were founded, numerous changes and modifications enforced by other laws or ministerial decisions and decrees, were instigated to improve the level of education provided. These improvements were based on significant educational experience taking into account the current needs of the market, in order to ensure that today's graduates will be provided with the required knowledge for the production of the product or project etc. that their individual degrees aim at.

The improvement of the education provided by the T.E.I. has led to the production of high quality graduates that are quickly absorbed in the work force which is to their advantage as well as to the advantage of society as a whole.

The most significant laws that have impacted on the Higher Technological Educational Institutes are:

- 1. Law 652/1970 Founding of the **Centers of Higher Technical** Education (K.A.T.E)
- 2. Law 576/1977 Expansion to Centers of Higher Technical and Vocational Education (K.A.T.E.E.)
- 3. Law 1404/1983 Transformation to **Technological Educational** Institutes (T.E.I)
- 4. Law 2916/2001 Promotion to of the Institutes to the current status of **Higher Technological Educational Institutes** (H.T.E.I)
- 5. Law 3404/2005 Setting issues of University and Technological Sector of Higher Education and other provisions.
- 6. Law 3549/2007 Reform of the institutional framework for the structure and function of Higher Education Institutions

The Law 2916/2001 ranks the T.E.I along with the Universities as Greek Higher Educational Institutes. The T.E.I.s complement the Universities while having different roles, aims and missions and give emphasis to the education of high quality professionals who, with the acquired theoretical knowledge and experience in practical application of this knowledge

- are the connecting link between theory and application by developing the practical dimension of their degree
- transfer, use and promote advance technological methods and techniques
- carry out technological research

#### 2. LEGAL AND INSTITUTIONAL FRAMEWORK OF OPERATION

#### 2.1. GENERAL

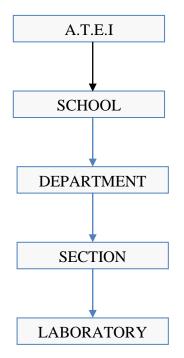
The main Law that governs the Technological Educational Institutes is 1404/83. Under the current Law 2916/2001 the Technological Educational Institutes were transformed into the Higher Technological Educational Institutes.

Each Higher Technological Educational Institute is comprised of **Schools** covering a group of relative scientific areas in order to ensure the scientific advancement through their interaction, the necessary research and coordinated teaching.

Schools are divided into **Departments**. Each department constitutes the basic academic unit and covers a specific scientific field. The departmental course structure leads to a complete Degree.

Departments are subdivided into **Sections**. Each section coordinates the teaching of a portion of the scientific field of the department.

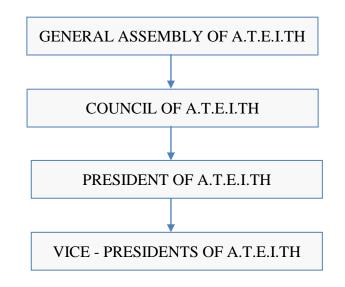
Finally, **Laboratories** are the smallest units, which belong to a section, department or school and cover part of a scientific field.



#### 2.2. ADMINISTRATION

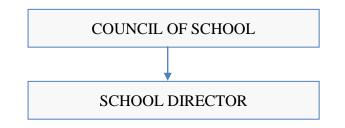
#### A. Decision Making Bodies of A.T.E.I.TH

- The General Assembly A.T.E.I.TH consists of the President, the three Vice Presidents, the General Secretary, the Director of each School, the Head of the Departments, the Director of the Centre of Foreign Languages and Physical Education, one representative of the Administration Staff, one representative of the Technical Support Staff, representatives of the Student Union (50% of the teaching staff participating in the Assembly). The secretary of the General Assembly is always a member of the Administration Staff, appointed by the President of the Institute.
- The Council of A.T.E.I.TH. consists of the President, the three Vice Presidents, the Directors of the Schools, one representative of the Student's Union. The General Secretary participates in the Council, but he can vote only for subjects related to administration matters.
- The President of A.T.E.I.TH is elected for a four years period.
- The three Vice Presidents are also elected for a four years period.



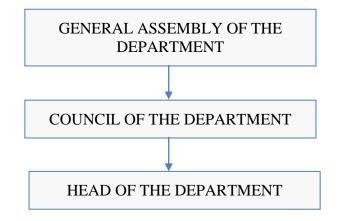
#### **B.** Decision Making Bodies of each School

- **The Council of the School** consists of the Director of each School, the Heads of the Departments and representatives of the Student's Union (40% of the teaching staff participating in the Council), and one member of the Administration or Technical Support staff, according to the subjects on the agenda.
- **The School Director** elected for a four years period.



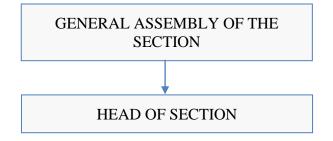
#### C. Decision Making Bodies of each Department

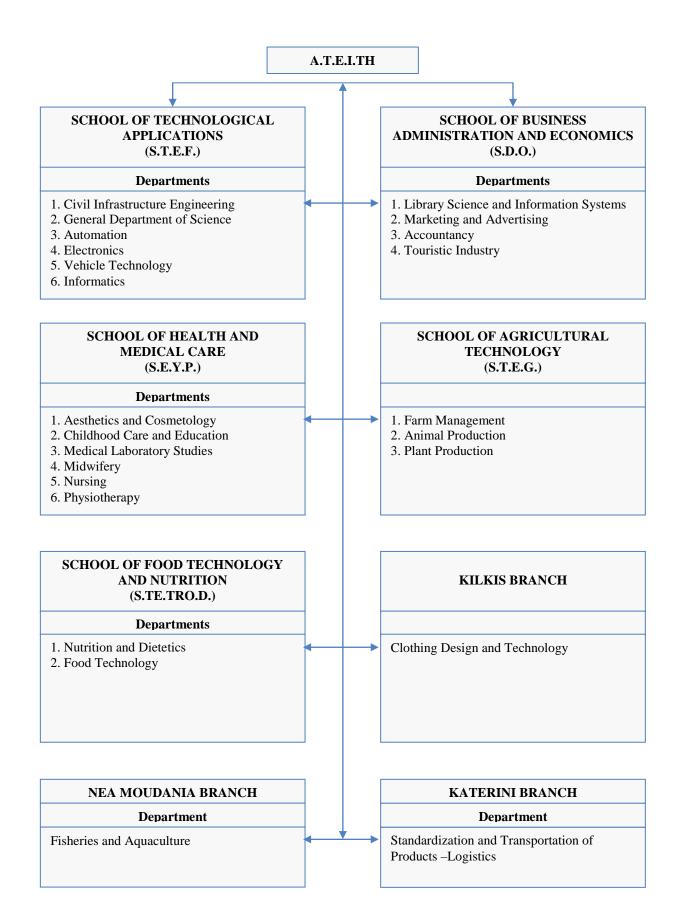
- The General Assembly of the Department consists of the academic staff of the department and representatives of the Students Union (40% of the total number of members of academic staff.)
- **The Council of the Department** consists of the Head of the Department, the Head of Sections, one student representative and one representative of the Technical Support staff for subjects on the agenda related to technical matters.
- The Head of the Department elected for a two years period.



#### **D.** Decision Making Bodies of each Section

- The General Assembly of the Section consists of the academic staff of the Section and two representatives of the Students Union.
- Head of Section elected for one year period.





#### 

#### **3. USEFUL INFORMATION FOR STUDENTS**

#### 3.1. GENERAL

The A.T.E.I.TH campus is located on the 15<sup>th</sup> km of the Thessaloniki-Athens national road, at the entrance of the town of Sindos and spreads out over an area of 1.600.000 square metres. The campus includes classrooms, laboratories, amphitheatres, administration offices, teaching staff offices, student's hall, library, restaurant, farm land and parking places.

A.T.E.I.TH accounts 430 members of permanent academic staff, 220 administrative staff and 21.000 students.

#### A. LIBRARY

There is a central library with a great number of books and journals and a reading room, where students are encouraged to study.

There is on line connection to the library through the following web – page: http://www.lib.teithe.gr.

The library is open all working days.

#### **3.2. STUDENTS' WELFARE**

#### A. I.K.Y. SCHOLARSHIPS

Scholarships are offered to students for excellent achievement during the national entry exams or during their course by the State Institute for Scholarships (I.K.Y.).

#### **B. LOANS**

Students can obtain interest-free loans, which are paid back after the completion of their studies.

#### C. BOOKS AND EDUCATIONAL NOTES

Books are provided free of charge to the students for each course.

#### **D. FEEDING**

Students with low income are eligible for a feeding card and receive meals either at the central restaurant at A.T.E.I.TH or in the city centre.

#### E. ACCOMMODATION – HALLS OF RESIDENCE

There are two Students' Halls, one at the A.T.E.I.TH. premises in Sindos and the other in the city centre, the ex-named Hotel Delta in Egnatia street. Basically, the Student's Halls are intended to accommodate students from other regions, on the basis of financial and social criteria.

#### F. HEALTH CARE

Students receive free full medical and hospital care.

#### G. ARMY SERVICE

Students who haven't completed their military service are eligible for postponement of army service until graduation. The duration of the army postponement equals the duration of the studies plus 2 years. More details and information can be obtained through the relevant army offices.

#### H. REDUCED – PRICED TICKETS (PASO)

According to the Presidential Law 265/85 (FEK99, vol. A), each student is eligible for a reduced-price ticket in all road, railway and marine means of mass transport inside the country.

Beneficiary students after their registration need to visit the secretary of the department in order to issue a strictly personal reduced ticket card (PASO) lasting for one academic year.

Students may arrive straight to the A.T.E.I.TH campus by bus no. 52 of Thessaloniki urban transportation, starting at the New Railway Station.

#### I. CULTURAL AND SOCIAL ACTIVITIES

Students have the possibility to participate in one of the following activities:

Tennis

• Table Tennis

Martial Arts

- Football
- Basketball
- Volleyball
- Gymnastics
- Scuba Diving
- SwimmingSkiing
- Chess
- Archery

## 3.3 INSTITUTIONAL INTERCONNECTIONS WITH SOCIETY AND KNOWLEDGE

#### A. EMPLOYMENT AND CAREERS CENTRE

Funded within the National Strategic Reference Framework (NSRF) 2007 -2013 the Employment and Careers Centre main aim is to establish a liaison between students and graduates with enterprising world by intervening in issues related with career development and professional establishment. It informs also on postgraduate studies, scholarships, national and international educational courses. The Centre's website is URL: http://www.dasta.teithe.gr

The centre consists of the following Offices are

- 1. Careers Office (http://www.career.teithe.gr)
- 2. Innovation and Entrepreneurial Centre (http://www.mke.teithe.gr)
- 3. **Internship Office** (www.praktiki.teithe.gr)

#### **B. INTERNATIONAL EDUCATIONAL PROGRAMMES OFFICE**

The International Educational Programmes Office is specialised in European Programmes with the aim to develop co operations for academic staff and students in order to enhance understanding between people and societies and to insure the transfer of knowledge.

- Shooting
  - Physical Training
  - Dancing groups and choruses

The following are indicative lateral actions with relevant Institutes such as:

- Student Mobility (Exchange of students for a period of 3 to 12 months which is considered as time spent at the student's home Institute).
- Teaching-staff mobility for short-term teaching visits.
- Preparation, supervision and valuation of student and teaching-staff mobility.
- European Credit Transfer System (ECTS).
- Intensive Programmes
- Development of study programmes jointly with other Institutions.

Towards this direction, A.T.E.I.TH cooperates with numerous European Educational Institutes within the Socrates Program.

More information regarding the International Educational Programmes Office can be found in the relevant web page: http://www.socrates.teithe.gr

Within the framework of the ERASMUS programme, the Department of Civil Infrastructure Engineering has established cooperations with the following foreign universities:

Country / University	Website
Cyprus	http://www.frederick.ac.cy
Frederick University	
Denmark	
VIA University College	http://www.vitusbering.dk
Esthonia	
Tallinna Tehnikakorgkool University	
of Applied Sciences	http://www.tktk.ee
France	
Universite de Cergy – Pontoise	http://www.u-cergy.fr
Germany	
Hochschule Regensburg University of	
Applied Sciences	http://www.fh-regensburg.de
Italy	
Univestita di Messina	http://www.unime.it
Lithuania	
Vilnus Gediminas Technical	
University	http://www.vgtu.lt
Poland	
Wroclaw University of Environmental	
and Life Sciences	http://www.up.wroc.pl
Poznan University of Life Sciences	http://www.up.poznan.pl
Portugal	
Instituto Politechnico de Braganca	http://www.estig.ipb.pt
Instituto Politecnico da Guarda	http://twintwo.ipg.pt/webapps/portal/frameset.jsp
Romania	
Universitatea "1 Decembrie 1918"	
Alba Iulia	http://www.uab.ro
Turkey	
Istanbul Technical University	http://www.international.itu.edu.tr
Ismir Institute of Technology	http://www.iyte.edu.tr

#### C. NETWORKS OF INFORMATICS (G.U.Net)

The A.T.E.I.TH is connected with Greek Universities network (G.U.Net), gaining access to information sources all over the world. The web page is http://www.gunet.gr

#### 4. DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING

#### 4.1. HISTORICAL REVIEW

The Department of Civil Infrastructure Engineering at the A.T.E.I.TH has evolved from previous relevant departments and has been developed on the basis of the following Greek Laws presented in chronological order.

Law 652/1970. The Centres for Higher Technical Education (K.A.T.E) was founded within the higher education framework. Inside K.A.T.E. the Higher School of Technology Engineers (A.S.T.E.M) was established substituting the pre-existed Higher School of Assistant Engineers. On the other hand the A.S.T.E.M of Thessaloniki K.A.T.E had a different philosophy regarding the course structure (emphasis on application) and included two departments, predecessors of the current department, the department of Structural Works and the department of Transport – Hydraulics Works. The Presidential Degree 336/73 specified the professional rights – responsibilities of the graduates.

Law 576/1977. The Centres for Higher Technical and Vocational Education (K.A.T.E.E) were established replacing K.A.T.E without substantial changes in the content of studies of the two departments.

Law 1404/1983. The Technological Educational Institutes were founded replacing K.A.T.E.E. The School is re-named into School of Technological Applications (S.T.E.F). The departments underwent significant reformations. The department of Structural Works was suppressed and the department of Civil Infrastructure Engineering replaced the department of Transport – Hydraulics Works. The department was subdivided into course groups, which were then became the following sections:

- 1. Structures
- 2. Geotechnical Engineering and Transport Infrastructure
- 3. Hydraulic and Environmental Engineering

Law 1418/84 for Public Works (article 17) and Presidential Law 472/85 (article 5) define the registration, classification and upgrade of the department graduates, as well as those graduated from A.S.T.E.M in the Register of Contractors' Experience (M.E.K), registration in which is necessary to take on the construction of public works.

Law 2916/2001, in force today. With the current law the Technological Educational Institutes evolved into Higher Technological Educational Institutes (A.T.E.I.), marking essential changes by introducing them into to Higher Education along with Universities and Polytechnics, but with distinguished roles as focus is paid into applied knowledge and research.

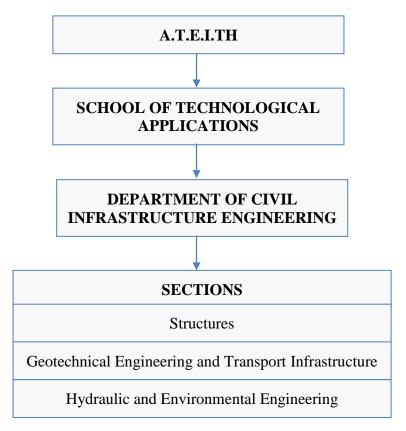
Law 3404/2005. Setting issues of University and Technological Sector of Higher Education and other provisions.

**Law 3549/2007**. Reform of the institutional framework for the structure and function of Higher Education Institutions

The department of Civil Infrastructure Engineering belongs to the School of Technological Applications, but the one more semester is added to the Course Program i.e. 8 semesters instead of 7.

The group of courses where substituted by the Sections and following relevant decisions by the general assembly of the sections the following Sections

- 1. Structures
- 2. Geotechnical Engineering and Transport Infrastructure
- 3. Hydraulic and Environmental Engineering



#### **4.2. GENERAL INFORMATION**

#### A. ADMINISTRATION

As for today the elected administration in the A.T.E.I.TH, in the School of Technological Applications and in the Department of Civil Infrastructure Engineering is follows:

A.T.E.I.TH. ADMINISTRATION							
CHAIRMAN	PAVLOS KARAKOLTSIDIS						
VICE CHAIRMEN	A. KONSTANTINOS VARSAMIDIS B. PHILLIPOS KARIPIDIS C. PANAGIOTIS TZIONAS						

### SCHOOL OF TECHNOLOGICAL APPLICATIONS (S.T.EF) ADMINISTRATION

DEAN

DIMITRIOS KONSTANTINIDIS

DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING								
ADMINISTRATION								
HEAD OF THE DEPARTMENT	KONSTANTINOS VAKALFOTIS							
HEADS OF SECTIONS	Geotechnical Engineering and Transport Infrastructure							
	THEMISTOKLIS DIMOPOULOS							
	Structures							
	THEODOSIOS PAPALIANGAS							
	Hydraulic and Environmental Engineering							
	GEORGIOS PECHLIVANIDIS							

#### **B. TEACHING STAFF**

#### GEOTECHNICAL ENGINEERING AND TRANSPORT INFRASTRUCTURE SECTION

#### PERMANENT STAFF

- 1. Dimopoulos Themistoklis, Professor
- 2. Vakalfotis Konstantinos, Assistant Professor
- 3. Konstantinos Anagnostopoulos, Assistant Professor
- 4. Zagkaretos Ioannis, Lecturer
- 5. Konitopoulos Georgios, Lecturer

#### ADJUNCT STAFF

- 1. Balabekou Ifigeneia
- 2. Christoglou Anastasios
- 3. Chatziangelou Maria
- 4. Dalla Fani
- 5. Maniatis Anastasios
- 6. Natsinas Theodoros
- 7. Papadopoulos Georgios
- 8. Patronis Christos
- 9. Tzilini Maria

#### STRUCTURES SECTION

#### PERMANENT STAFF

- 1. Papaliangkas Theodosios, Professor
- 2. Konstantinidis Dimitrios, Professor
- 3. Rentzeperis Ioannis, Assistant Professor
- 4. Kinikli Maria, Lecturer

#### SPECIAL LABORATORY STAFF

- 1. Mentekidis Socrates
- 2. Tzoutzis Ioannis

#### ADJUNCT STAFF

- 1. Alexoudi Maria
- 2. Chatzimeletiou Apostolos
- 3. Chatzopoulou Despina
- 4. Galiatsatou Panayiota
- 5. Gravalas Fotios
- 6. Koinakis Chrisostomos
- 7. Kyriakou Maria
- 8. Papadopoulos Ilias
- 9. Papadopoulou Anthi

- 10. Papakosta Lefkothea
- 11. Tsiogkas Konstantinos

#### HYDRAULICS AND ENVIRONMENTAL ENGINEERING SECTION

#### PERMANENT STAFF

- 1. Pechlivanidis Georgios, Professor
- 2. Samaras Grigorios, Professor
- 3. Svolopoulos Ioannis, Lecturer

#### ADJUNCT STAFF

- 1. Arvanitidou Stamatia
- 2. Christopoulos Spyridon
- 3. Deligiannis Andreas
- 4. Kechagias Eleftherios
- 5. Keramaris Evaggelos
- 6. Mavridou Sofia

#### C. COLLABORATING STAFF FROM OTHER DEPARTMENTS

## GENERAL DEPARTMENT OF SCIENCE (SCHOOL OF TECHNOLOGICAL APPLICATIONS)

1. Mpotouroglou Leonidas

## DEPARTMENT OF FARM MANAGEMENT (SCHOOL OF AGRICULTURAL TECHNOLOGY)

1. Vlachopanos Konstantinos

#### **D. DEPARTMENTAL SECRETARY**

- 1. Kiriklidis Eftathios
- 2. Patsavridou Penelope
- 3. Vainakis Iraklis (Lead)

#### E. TEACHING STAFF PREVIOUSLY SERVED THE DEPARTMENT

#### DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING

- 1. Anastasiadis Alexios (1995)
- 2. Chatzopoulos Ioannis (1990)
- 3. Diamantidis Nikolaos (2007)
- 4. Grimoula Olympia (1994)
- 5. Iliopoulos Panagiotis (2000)
- 6. Kafyris Ioannis (2007)

- 7. Kalesis Dimitrios (2006)
- 8. Kaltsidou Danai (1992)
- 9. Kapetanou Antigoni (2010)
- 10. Karatses Stefanos (1996)
- 11. Kargas Vasileios (2010)
- 12. Kenameas Dimitrios (2006)
- 13. Kinikli Asimenia (2010)
- 14. Kokkini Tessa Vasiliki (1998)
- 15. Mpournia Eirini (2010)
- 16. Nakoutis Asterios (2008)
- 17. Papageorgiou Evaggelos (2005)
- 18. Prantzos Vaios (2008)
- 19. Psonis Panagiotis (2008)
- 20. Savvidis Socrates (2003)
- 21. Sofianos Georgios (2008)
- 22. Sompolos Christos (2007)
- 23. Tsogkas Christos (2007)
- 24. Touranis Theodoros (2007)
- 25. Xiromeritis Nikoloas (2007)

#### GENERAL DEPARTMENT OF SCIENCE

- 1. Athanasiadis Andreas
- 2. Anastasiadis Nikolaos
- 3. Voulasikis Stavros
- 4. Efremidis Nikolaos
- 5. Pyrgidis Theodoros
- 6. Sofronidis Efstathios
- 7. Folina Tsochatzi Kyriaki
- 8. Voulgaropoulos Byron
- 9. Terzidis Charalambos
- 10. Tzivanakis Nikolaos

#### DEPARTMENTAL SECRETARY

- 1. Ziaka Aikaterini
- 2. Patsavridou Penelope

\* For the departmental teaching staff, last year served the ATEITH is shown in brackets. This is not shown for the teaching staff from other departments (e.g. the General Department of Science).

#### 5. ACADEMIC COURSE REQUIREMENTS

#### **5.1. GENERAL INFORMATION**

The revised course program that is currently used in the department of civil infrastructure engineering was compiled according to the Law N2916/2001 and its application commenced in the spring semester of the academic year 2002-03. The total duration is **eight academic semesters** and covers all modern requirements for exercising the profession of Civil Infrastructure Engineer.

The Department's course content provides the scientific and technological knowledge required for the application in the design and construction of civil infrastructure and development projects.

The final  $(8^{th})$  semester includes a requirement for an **Internship** period in the field as well as the submission of a **Dissertation**.

Through the **Internship** students are provided with practical work experience within the department's course framework. The internship period may be achieved in either the public or private sector and lasts six (6) months starting only after the student passes all the specialization courses (theory and laboratory).

The **Dissertation** allows the student to apply and deepen his/her knowledge in his/her chosen field of specialisation. It comprises the first technical and scientific document to be written by the future Civil Infrastructure Engineer, in which it is expected that he/she will employ experimental and/or analytical methods as well as carry out a relevant literature review, in order to study a specific subject, analyse results and draw educated conclusions, while concurrently enhancing his/her writing capabilities.

The permanent and temporary teaching staff suggest dissertation topics that are approved by the sections of the department and are announced to the students. The choice of dissertation topic is made in collaboration with the staff member that will supervise the dissertation. It is possible for a dissertation to be carried out by a group up to 3 students if the scope is extensive or if the realisation has exceptional requirements.

For the examination of the final dissertation a three member examination committee comprised of the supervisor and two other members of staff is appointed by the Departmental Council following recommendation of the Supervisor. The examination is verbal following a brief presentation and covers the field of specialization to which the dissertation topic belongs. The dissertation presentation and the verbal examination are carried out in public, as a special event, to which all members of staff and students may attend. In the case that the examination committee concludes that the dissertation requires corrections and/or additions, these must be completed and the dissertation re-examined following the same procedure at a later date.

The Dissertation must be submitted in 5 copies, one of which is submitted to the Institute Library.

The evaluation criteria for the final year dissertations are:

1. difficulty of topic

- 2. the depth of understanding and coverage of the topic.
- 3. innovation and degree of achievement of requirements.
- 4. the degree of achievement of thesis' goal.
- 5. presentation
- 6. literature review
- 7. initiative and innovating ideas of the student.
- 8. cooperation, diligence and eagerness of the student
- 9. the overall presentation

The dissertation mark is obtained as the average of the marks of the three members of the examination committee.

#### **5.2. DEPARTMENTAL GRADUATES**

Students may graduate from the department only when he/she has

- 1. fulfilled all course requirements
- 2. passed the final dissertation examination
- 3. completed a six month internship

The final degree grade is calculated as follows:

Degree Grade =  $\frac{\text{Sum Product (ECTS Units x Marks)}}{\text{SUM of ECTS Units}}$ 

ECTS Units including dissertation.

#### **5.3. OBJECTIVES**

The main objective of the Department to enhance the applied dimension of the scope of interest of the Civil Infrastructure Engineer. This is achieved by the transfer, enrichment and advancement of technology, based on the high academic and industrial experience of the teaching staff.

This provides graduates with the opportunity to be employed by either private sector companies (design offices, contractors or other companies) or the public sector (organizations or education) or even to become entrepreneurs in the design or construction of infrastructure projects in their field of specialization.

#### **5.4. COURSE STRUCTURE**

The Department's academic programme lasts 4 years and is divided into 8 academic semesters. Each student is required to pass 40 subjects of which 34 are compulsory and make up the core courses and 6 electives. The 34 compulsory core courses are divided into Basic Courses (BC) and Advance Courses(AC). Basic Courses provide fundamental general knowledge while the Advance Courses provide more in depth knowledge in a specific subject.

The Specialization Courses (SC), on the other hand, are those courses that actually achieve the objective of the department which is the application of the knowledge obtained from the core courses to the design and construction of infrastructure

projects. In addition, elective courses in Management, Economics Legislation and Humanities (MELH), provide a managerial and social dimension to the course structure. Therefore, the students are required to choose 5 elective courses out of the 10 Specialization Courses and 1 out of the 3 MELH courses.

In addition a number of Optional Courses are available for all interested students.

The final  $(8^{\text{th}})$  semester includes a requirement the submission of the final **Dissertation** as well as for a 6 – month **Internship** period for practical experience in a private company or public organisation that is financed by the Government.

Each course depending on its content and teaching methodology can be distinguished into

- > pure lecture course
- pure laboratory course

or combinations of

- lectures and tutorials
- lectures and laboratory work
- lecture, tutorials and laboratory work

According to the weekly teaching hours, each of the previously described parts that a subject may be divided into, obtains one E.C.T.S. unit that are acknowledged by the EU. According the final Dissertation is assigned 10 E.C.T.S. units while the Internship Period is assigned 20 E.C.T.S. units.

At the beginning of8 each semester, the student declares the courses he/she will be taking for which the total number of ECTS units may not exceed 36. This may increase to 37 if the student has signed up for at least one course with 7 E.C.T.S. units. When the student is in his/her 8<sup>th</sup> semester or has surpassed it, he/she may declare courses up to 42 E.C.T.S. units. This number may be increasd to 49 if he/she is not concurrently planning to submit the final dissertation.

The Course Schedule follows which includes all taught course per semester with their corresponding weekly hours and E.C.T.S. units.

### **5.5. COURSE SCHEDULE**

## 1<sup>st</sup> SEMESTER

			HO	URS		ECTS UNITS			
COURSE TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL	
Mathematics	BC	3	2		5	5.0	1.0	6.0	
Physics	BC	2		2	4	4.0	1.0	5.0	
Chemical Technology	BC	2		2	4	4.0	1.0	5.0	
Technical Drawing	BC			3	3		2.0	2.0	
Structural Analysis	BC	3	1	2	6	5.0	2.0	7.0	
Introduction to	BC	2		2	4	4.0	1.0	5.0	
Computers									

## 2<sup>nd</sup> SEMESTER

		HOURS				ECTS UNITS			
COURSE TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL	
Applied Mathematics	BC	3	2		5	5.0	1.0	6.0	
Special Topics in	BC	2		2	4	4.0	1.0	5.0	
Physics									
Materials Technology	BC	2		2	4	4.0	1.0	5.0	
Surveying	AC	2		3	5	4.0	2.0	6.0	
Strength of Materials	AC	3		2	5	5.0	1.0	6.0	
Computer	BC			3	3		2.0	2.0	
Programming									

## 3<sup>rd</sup> SEMESTER

			HO	URS	ECTS UNITS			
COURSE TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL
Soil Mechanics I	AC	2		2	4	4.0	1.0	5.0
Hydraulics I	AC	2		3	5	3.5	2.0	5.5
Applied Structural	AC	2		2	4	4.0	1.0	5.0
Analysis								
Engineering	AC	2		2	4	3.5	1.0	4.5
Technology								
Construction Plants	AC	2	2		4	3.5	1.0	4.5
and Machines								
Special Topics in	AC	2		3	5	3.5	2.0	5.5
Surveying								

## 4<sup>th</sup> SEMESTER

			HO	URS	ECTS UNITS			
COURSE TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL
Soil Mechanics II	AC	2		2	4	4.0	1.0	5.0
Hydraulics II	AC	2		2	4	4.0	1.0	5.0
Highway	AC	2		2	4	4.0	1.0	5.0
Engineering I								
Reinforced	AC	3		2	5	5.0	1.0	6.0
Concrete								
Hydrology –	AC	2	2		4	3.5	1.0	4.5
Ground Water								
Engineering								
Construction	MELH	2	1		3	3.5	1.0	4.5
Legislation								

## 5<sup>th</sup> SEMESTER

			НО	URS		ECTS UNITS			
COURSE TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL	
Rock Mechanics-	SC	2		2	4	4.0	1.0	5.0	
Tunnels									
Highway	SC	2		2	4	3.5	1.0	4.5	
Engineering II									
Construction Site	SC	2	2		4	3.5	1.0	4.5	
Organisation									
Water Supply	SC	2		3	5	4.0	2.0	6.0	
Projects									
Elective 1	SC	2		3	5	3.5	2.0	5.5	
Technical and	MELH	2	2		4	3.5	1.0	4.5	
Financial Analysis									
of Projects									

## 6<sup>th</sup> SEMESTER

			HO	URS	ECTS UNITS			
COURSE TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL
Sewage Systems	SC	2		2	4	4.0	1.0	5.0
Projects								
Highway Projects	SC	3		3	6	5.0	2.0	7.0
Elective 2	SC	2		3	5	3.5	2.0	5.5
Elective 3	SC	2		3	5	3.5	2.0	5.5
Elective from	MELH	3	3		6	5.0	2.0	7.0
AELH								

## 7<sup>th</sup> SEMESTER

COURSE			НО	URS	ECTS UNITS			
TITLE		LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL
Environmental	SC	3		3	6	5.0	2.0	7.0
Design of								
Projects								
Foreign	SC	2	2		4	4.0	1.0	5.0
Language –								
Terminology								
Elective 4	SC	2		3	5	3.5	2.0	5.5
Elective 5	SC	2		3	5	3.5	2.0	5.5
Safety at Work	MELH	3	3		6	5.0	2.0	7.0

## 8<sup>th</sup> SEMESTER

		НО	URS	ECTS UNITS			
COURSE TITLE	LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL
Dissertation			4				20.0
Internship							10.0

#### SPECIALIZATION COURSES (CE)

(Students must choose at least 5 courses from the following table)

	HOURS				ECTS UNITS		
COURSE TITLE	LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL
Transport Engineering	2		3	5	3.5	2.0	5.5
Harbour Projects	2		3	5	3.5	2.0	5.5
Railway Engineering	2		3	5	3.5	2.0	5.5
Hydrodynamic Projects	2		3	5	3.5	2.0	5.5
Airport Design Projects	2		3	5	3.5	2.0	5.5
River Training	2		3	5	3.5	2.0	5.5
Bridge Engineering	2		3	5	3.5	2.0	5.5
Irrigation Systems – Drainage Systems	2		3	5	3.5	2.0	5.5
Earthquake Resistant Design of Structures	2		3	5	3.5	2.0	5.5
Design and Construction of Waste Treatment Installations	2		3	5	3.5	2.0	5.5

## MANAGEMENT – ECONOMICS – LEGISLATION – HUMANITIES COURSES (MELH)

(Students must choose 1 course from the following table)

	HOURS				E	ECTS UNITS		
COURSE TITLE	LECT.	TUTOR.	LABOR.	TOTAL	LECT TUTOR.	LABOR.	TOTAL	
Business Management	3	3		6	5.0	2.0	7.0	
Operational Research	3	3		6	5.0	2.0	7.0	
Entrepreneurship	3	3		6	5.0	2.0	7.0	

#### **OPTIONAL COURSES**

COURSE TITLE		HOURS				
			TUTORIALS	LABORATORY		
1.	Computer Aided Analysis of Hydraulic Works			2		
2.	Computer Aided Analysis of Structures			2		
3.	Geographical Information Systems			2		
4.	Computer Aided Geotechnical Engineering			2		
5.	Computer Aided Project Management			2		
6.	Infrastructure Projects – Land Planning					
7.	Environmental Impact Design		2			
8.	Computer Aided Design of Tunnels			2		
9.	Foreign Language I			2		
10.	Foreign Language II		2			
11.	Computer Aided Highway Engineering			2		
12.	Environmental Geotechnics		2			
13.	Regional Development		2			
14.	Computer Aided Budgeting and Costing of			2		
	Construction Projects					
15.	Computer Aided Technical Drawing			3		
10.	Computer Aided Surveying			2		

### 5.6. DISTRIBUTION OF COURSES PER SECTION

GENERAL DEPARTMENT OF SCIENCE				
Mathematics	BC (1 <sup>st</sup> Semester)			
Physics	BC (1 <sup>st</sup> Semester)			
Chemical Technology	BC (1 <sup>st</sup> Semester)			
Introduction to Computers	BC (1 <sup>st</sup> Semester)			
Applied Mathematics	BC (2 <sup>nd</sup> Semester)			
Special Topics in Physics	BC (2 <sup>nd</sup> Semester)			
Materials Technology	BC (2 <sup>nd</sup> Semester)			
Computer Programming	BC (2 <sup>nd</sup> Semester)			

#### GEOTECHNICAL ENGINEERING AND TRANSPORT INFRASTRUCTURE SECTION

SurveyingAC (2nd Semester)Soil Mechanics IAC (3rd Semester)Engineering GeologyAC (3rd Semester)Special Topics in SurveyingAC (3rd Semester)Soil Mechanics IIAC (4th Semester)Highway Engineering IAC (4th Semester)Rock Mechanics – TunnelsAC (5th Semester)Highway Engineering IIAC (5th Semester)Safety at WorkMELH (7th Semester)Safety at WorkSC (Elective)	I KANSPORT INFRASTRUCTURE SECTION			
Engineering GeologyAC (3 <sup>rd</sup> Semester)Special Topics in SurveyingAC (3 <sup>rd</sup> Semester)Soil Mechanics IIAC (4 <sup>th</sup> Semester)Highway Engineering IAC (4 <sup>th</sup> Semester)Rock Mechanics – TunnelsAC (5 <sup>th</sup> Semester)Highway Engineering IIAC (5 <sup>th</sup> Semester)Safety at WorkMELH (7 <sup>th</sup> Semester)	Surveying	AC (2 <sup>nd</sup> Semester)		
Special Topics in SurveyingAC (3 <sup>rd</sup> Semester)Soil Mechanics IIAC (4 <sup>th</sup> Semester)Highway Engineering IAC (4 <sup>th</sup> Semester)Rock Mechanics – TunnelsAC (5 <sup>th</sup> Semester)Highway Engineering IIAC (5 <sup>th</sup> Semester)Safety at WorkMELH (7 <sup>th</sup> Semester)	Soil Mechanics I	AC (3 <sup>rd</sup> Semester)		
Soil Mechanics IIAC (4th Semester)Highway Engineering IAC (4th Semester)Rock Mechanics – TunnelsAC (5th Semester)Highway Engineering IIAC (5th Semester)Safety at WorkMELH (7th Semester)	Engineering Geology	AC (3 <sup>rd</sup> Semester)		
Highway Engineering IAC (4th Semester)Rock Mechanics – TunnelsAC (5th Semester)Highway Engineering IIAC (5th Semester)Safety at WorkMELH (7th Semester)	Special Topics in Surveying	AC (3 <sup>rd</sup> Semester)		
Rock Mechanics – TunnelsAC (5 <sup>th</sup> Semester)Highway Engineering IIAC (5 <sup>th</sup> Semester)Safety at WorkMELH (7 <sup>th</sup> Semester)	Soil Mechanics II	AC (4 <sup>th</sup> Semester)		
Highway Engineering IIAC (5 <sup>th</sup> Semester)Safety at WorkMELH (7 <sup>th</sup> Semester)	Highway Engineering I			
Safety at Work MELH (7 <sup>th</sup> Semester)	Rock Mechanics – Tunnels	AC (5 <sup>th</sup> Semester)		
· · · · · · · · · · · · · · · · · · ·	Highway Engineering II			
Transport Engineering SC (Elective)	Safety at Work	MELH (7 <sup>th</sup> Semester)		
	Transport Engineering	SC (Elective)		
Railway Engineering   SC (Elective)	Railway Engineering	SC (Elective)		
Airport Design Projects SC (Elective)	Airport Design Projects	SC (Elective)		

STRUCTURES SECTION				
Technical Drawing	BC (1 <sup>st</sup> Semester)			
Structural Analysis	BC (1 <sup>st</sup> Semester)			
Strength of Materials	BC (2 <sup>nd</sup> Semester)			
Applied Structural Analysis	AC (3 <sup>rd</sup> Semester)			
Construction Plants and Machines	AC (3 <sup>rd</sup> Semester)			
Reinforced Concrete	AC (3 <sup>rd</sup> Semester)			
Construction Legislation	MELH (4 <sup>th</sup> Semester)			
Construction Site Organisation	SC (5 <sup>th</sup> Semester)			
Technical and Financial Analysis of Projects	MELH (5 <sup>th</sup> Semester)			
Highway Projects	SC (6 <sup>th</sup> Semester)			
Bridge Engineering	SC (Elective)			
Earthquake Resistant Design of Structures	SC (Elective)			
Business Management	MELH (Elective)			
Operational Research	MELH (Elective)			
Entrepreneurship	MELH (Elective)			

HYDRAULICS AND ENVIRONMENTAL ENGINEERING SECTION				
Hydraulics I	AC (3 <sup>rd</sup> Semester)			
Hydraulics II	AC (4 <sup>th</sup> Semester)			
Hydrology – Ground Water Engineering	AC (4 <sup>th</sup> Semester)			
Water Supply Projects	SC (5 <sup>th</sup> Semester)			
Sewage Systems Projects	SC (6 <sup>th</sup> Semester)			
Environmental Design of Projects	SC (7 <sup>th</sup> Semester)			
Harbour Projects	SC (Elective)			
Hydrodynamic Projects	SC (Elective)			
River Training	SC (Elective)			
Irrigation Systems – Drainage Systems	SC (Elective)			

#### FOREIGN LANGUAGE SECTION

Foreign Language - Terminology

BC (1<sup>st</sup> Semester)

#### **5.7. COURSE SYLLABUS**

#### <u>1<sup>st</sup> SEMESTER COURSES</u>

#### MATHEMATICS

#### Aim of the course

The aim of the course is to provide students with fundamental knowledge, tools and techniques in order to understand better the elective courses and be able to solve problems that occur in the application of their science.

#### Course description

Linear Algebra: linear systems, eigenvalues and eigenvectors, Gauss elimination. Differential calculus: Curve. Parametric equations and curve equation without parameter. Tangent and vertical to a curve. Differentiation of complex functions. Differential of inverse trigonometric functions. Taylor and Maclaurin series. Integral calculus: indefinite integral, integration methods, integral of trigonometric functions, definite integrals and applications.

#### **TECHNICAL DRAWING**

#### Aim of the course

The course aims at teaching basic drawing methods and the comprehension of technical drawings.

#### Course description

Introduction to line drawing, dimensions, drawing scale, drawing of an object. Geometric structures (applications). Drawing of an object – projection system (drawing of elevation and cross-sections). Volumetric representation of an object (global drawing of an object, axonometric drawing, drawing the axonometric from the elevations). Drawing sketches (free designing of an object). Application specialised issues (drawing buildings, mechanical drawing and electromechanical drawing).

#### STRUCTURAL ANALYSIS

#### Aim of the course

The aim of the course is to teach the students the fundamental principles and methods of Statics. The course handles the elementary vector analysis. Also it emphasises the important role of the perception of equilibrium and the "diagram of free body". Another aim of the course is to teach the students the way to approach the solution of problems of Statics as well as the critical attitude towards the results.

At the end of the course the students are expected:

- To have a good knowledge of the force systems in 2 and 3-dimensions. They will be capable of calculating the resultant of forces and handle the equilibrium equations for each system of forces.
- > To be capable of calculating the reactions in the supports of statically determinate structures (simple or complex).
- To be capable of calculating the axial element forces of statically determinate trusses.
- To be capable of calculating the second moments of simple or complex 2dimensional section areas, to determine the principal axes of inertia and to find the second moment of inertia to them.

#### Course description

- Introduction: Fundamental principles and theorem in the Mechanics. Systems of units.
- Vectors: Vector elements. Rules of handling vectors. Cartesian components in 2 and 3-dimensional systems. Multiplying vectors (internal, external, mixed).
- Forces: Resultant of two forces. Law of parallelogram. Resolution of a force into two components. Polygon of forces. Diagram of free body.
- Moments: Moment of a force about a point. Vector of moment. Theorem of Varignion. Moment of a force about the beginning of coordinates.
- System of coplanar and concurrent forces: Determination of the resultant force (Method of projections). Equilibrium equations. Applications.
- System of coplanar and parallel forces: Determination of the resultant force. Equilibrium equations. Couple of forces. Parallel transfer of forces. Applications.
- System of coplanar forces: Determination of the resultant force. Equilibrium equations. Applications.
- > <u>Friction</u>: Theory of friction. Applications.
- Structures in equilibrium: Supports. Diagrams of free body. Calculation of reactions, axial forces, bending moments, shear forces.
- ➢ Forces in 3-dimensions: Cos of direction.
- Concurrent forces in 3-dimensions: Determination of resultant force. Equilibrium equations. Applications.
- Axial moment of force: Varignion Theorem.
- > <u>Couple of forces in 3-dimensions</u>: Equilibrium equations. Applications.
- Parallel forces in 3-dimensions: Determination of resultant force. Equilibrium equations.
- <u>General system of forces in 3-dimensions</u>: Equilibrium equations.
- Centroid and centre of mass: Complex bodies. Static first moment of section area about an axis. Theorems of Pappou - Guldin. Uniformly and non uniformly distributed loads.
- > <u>Trusses</u>: Method of joints. Method of Ritter sections. Applications.
- Second moments of section areas: Definitions. Theorems of parallel axes, (Steiner). Principal axes of inertia. Circle of Mohr.
- > <u>Virtual work</u>: Principles of virtual work. Application in structures.

#### **INTRODUCTION TO COMPUTERS**

#### Aim of the course

The aim of the course is to introduce PCs to students.

#### Course description

Introduction to operation systems. Working on desktop. Introduction to Windows, internet, e-mail, address book, printing, scanning, MS applications (Word).

#### PHYSICS

#### Aim of the course

The aim of the course is to provide students with the fundamental knowledge in order to understand the principles and laws of physics and to develop their own ability to confront new problems.

#### Course description

Mechanics of materials (kinematics, statics, dynamics). Work. Power. Energy. Gravity filed. Periodic motions (simple harmonic oscillation, Fourier analysis, applications). Fluid mechanics. Heat, temperature, temperature measuring, calorimetry. Thermal expansion, heat transfer, heat insulation. Waves. Wave energy. Doppler phenomenon. Sound, acoustics, ultrasounds, noise pollution. Graphical representation, least square method, theory of errors, determination of ground acceleration, friction coefficient, vibrations, impact loading, calculation of fluid density. Computer simulation.

#### CHEMICAL TECHNOLOGY

#### Aim of the course

The aim of the course is teach students the important physical and chemical processes and especially to learn the production process of chemical industry products used in their field.

#### Course description

Chemical activities (thermo chemistry, chemical kinetics, chemical equilibrium chemical reactors), water (natural, drinkable, chemically clear, treatment of industrial waste), inorganic chemical products (concrete, metals, glass). Laboratory tutorials of general chemistry such as calculation of density, acidimetry – alkalimetry, pH.

### <u>2<sup>nd</sup> SEMESTER COURSES</u>

#### **APPLIED MATHEMATICS**

#### Aim of the course

The aim of the course is to provide students with fundamental knowledge, tools and techniques in order to understand better the elective courses and be able to solve problems that occur in the application of their science.

#### Course description

Differential equations, Functions of multiple variables, double integrals, triple integrals (application to centre of mass and moment of inertia), partial derivatives, probability theory, Gauss normal distribution, Bernoulli distribution.

#### MATERIALS TECHNOLOGY

#### Aim of the course

The aim of the course is to familiarize students with different materials used in their industry (production, properties, processing) and learn also how to control the quality of these materials.

#### Course description

Properties of construction materials, mortars, natural stones, wood, plastics, asphalt, glass, steel, ceramics, colours, Specifications, codes of practice, rocks, properties of aggregates: particle shape and texture, strength, apparent weight, specific gravity, porosity, moisture content and water absorption), cements (volume stability of cement paste), mortars.

#### **SPECIAL TOPICS IN PHYSICS**

#### Aim of the course

The course aims to let the students understand the basic concepts of physics and the fundamental limits that impose on us.

Course description

Electricity. Optics. Laser. Nuclear power.

#### SURVEYING

#### Aim of the course

The aim of the course is to provide students with knowledge of surveying that will assist them in all scientific and technical disciplines involved in the design and construction of civil infrastructure projects.

#### Course description

Fundamentals in surveying, units of measurement, scales, reference surfaces, error theory, length measurements and instruments, area mapping, theodolite, electromagnetic measurement of length and angle, GPS, total station. Traversing, tacheometry and altimetry measurements.

#### **STRENGTH OF MATERIALS**

#### Aim of the course

The course aims to familiarize the students with the distortion that happens to the different materials under the influence of various forms of external forces, assuming them to be homogeneous and isotropic bodies.

#### Course description

Stresses, internal forces, properties of materials, axially loaded members (tension, compression, shear, torsion, flexure), combined loading (biaxial bending, eccentric tension), connections.

#### **COMPUTER PROGRAMMING**

*Aim of the course* The aim of course is to provide students with the knowledge to resolve issues of Surveying – Mechanics - Fluid Mechanics by using Excel and Access programs.

#### Course description

Calculations using MS Excel, graphical representations, use of MS Access, data management, report creation.

#### <u>3<sup>rd</sup>SEMESTER COURSES</u>

#### SOIL MECHANICS I

#### Aim of the course

The course aims to familiarize students with the different types of soils and physical and mechanical properties in order to understand the behavior of the material on which the foundations of infrastructure projects are seated, as well as the base for the construction of pavements, embankments, dams etc.

#### Course description

Introduction to soil mechanics, soil classification, index properties, Mohr – Coulomb criterion, cohesive and non-cohesive soils, principle of effective stress, outlines of geological materials, earth pressure, retaining walls calculation.

#### HYDRAULICS I

#### Aim of the course

The aim of the course is to teach the mathematical foundation of the basic laws in hydraulics. Students learn the principles of continuity, momentum and energy in order to be able to resolve different hydraulic problems.

#### Course description

<u>Natural properties of fluids</u>: (density and specific weight-temperature-pressurecompressibility, thermal expansion and modulus of elasticity, specific heats c -vapor pressure-surface tension). Transport properties (viscosity-dimensions of viscosity coefficient, thermal conductivity coefficient  $\lambda$ , molecular diffusion coefficient D).

<u>Hydrostatics</u>: Hydrostatic pressure (simulation of pressure as a point load- the hydrostatic law- hydrostatic distribution of pressures- hydrostatic pressure diagramscommunicating vessels- isobaric surfaces – fluids in rotary motion – fluid in linear accelerative motion- Forces in horizontal plane-resultant force- application point of resultant force- forces on curve surfaces- horizontal component of forces-vertical component of forces- buoyancy).

<u>Hydrodynamics</u>: (Field flow – flow lines - orbits – emission lines – time lines – continuity law - Reynolds transport theorem – integral form of continuity law – hydrodynamic law in integral and in differential form – Bernoulli theorem).

#### APPLIED STRUCTURAL ANALYSIS

#### Aim of the course

The aim of the course is to provide the basic principles for the calculation of structures regardless their form and shape.

#### Course description

Calculation of bending moments, shear forces and axial forces for statically determinate and indeterminate structures, influence lines for statically determinate structures under live loads.

#### **ENGINEERING GEOLOGY**

#### Aim of the course

The aim of the course is to teach students the properties and use of rocks, ground investigation, slope stability, the relation between geology and civil works, the importance of stratigraphy and tectonic structures in civil engineering works, interpretation of geological maps, construction and interpretation of stereographic projections in solving engineering problems.

#### Course description

Classification of rocks - igneous, sedimentatary and metamorphic rocks. Engineering properties of rocks. Geological structures-folds, discontinuities. Weathering. Soil and rock description. Site investigation, characterization and problems related to civil engineering projects: dams, tunnels, bridges, highways. Environmental considerations related to civil engineering projects. Construction materials. Geological hazards

(landslides and earthquakes) their significance, causes and preventive/remedial measures.

Geological maps, geological longitudinal sections, borehole elements, stereographical projections, rose diagrams, stability analysis.

#### CONSTRUCTION PLANTS AND MACHINES

#### Aim of the course

The aim of the course is to teach students the different types of machinery needed in construction engineering and understanding how they work. Procedures and calculations to facilitate the evaluation and selection of equipment are of particular importance for the course. Students, upon completion of the course are expected to be able to participate in monitoring and controlling the work of such machinery and also to collect data on the effect of past construction sites, in order ultimately to reassure the benefits of use.

#### Course description

Elements of machinery operation (Diesel engine, mechanic and hydraulic system). Factors influencing the choice of machinery. Machinery evaluation. Presentation of the more usually used construction machines for earth excavation, earth moving, earth compaction, borehole drilling. Aggregate production unit, Asphalt production unit

#### SPECIAL TOPICS IN SURVEYING

Aim of the course

The course aims to make students capable of:

- Lining the layout and elevation axis of any project.
- Calculating the coordinates of trigonometric points.
- > Surveying any land and calculate the corresponding area.
- Lining construction, transportation and water projects.
- Lining horizontal and vertical curves.
- Calculating the volume of earthworks.

#### Course description

Horizontal alignment of structures' axis, faults, longitudinal and cross sectional depiction of soil cuts, alignment of curves, super - elevation, theodolite, angle measure, electromagnetic methods of measuring lengths and angles, GPS.

#### <u>4<sup>th</sup>SEMESTER COURSES</u>

#### SOIL MECHANICS II

#### Aim of the course

The course aims to bring students the knowledge of the behaviour of soils under the presence of water, the different types of landslides, slope stability and load carrying capacity in order to understand the behavior of the material on which the foundations of infrastructure projects are seated, as well as the base for the construction of pavements, embankments, dams etc.

#### Course description

Deformations and soil settlements, effective stress, water flow inside the soil, slope stability, Fellenius method, Bishop method, solidification, shear strength of clays, bearing capacity of soils.

#### **HYDRAULICS II**

#### Aim of the course

The aim of the course is the acquisition of as much necessary knowledge as possible from the students in order to be able to understand and embedding better the hydraulic laws and respond better to the needs of the study and constructions of hydraulic engineering.

#### Course description

Open channels (introduction-velocity distribution in open channels-steady flowturbulent flow-uniform steady flow-dissipations-resistance coefficient  $\psi$  (or c)-Chezy equation-cross section of maximum conductivity-rectangular cross section-triangular cross section-trapezoidal cross section-complicate cross section-level of maximum discharge and maximum velocity-critical flow-energy and discharge-uniform flowcritical depth-steady non uniform flow-gradual varied flow-study of the form of free surface-case of rectangular cross section with large width b- case of rectangular cross section with finite width b-natural open channels-rapidly varied flow-hydraulic jumptypes of hydraulic jump-theoretical study of the hydraulic jump-characteristically dimensions of hydraulic jump-hydraulic jump in open channel of rectangular cross section with small slope-flow under a gate-calculation of discharge-calculation of the resistibility of the water to the gate-outflow from holes-hole with small dimensionsdischarge coefficient µ-hole with high dimensions-fully immersed hole-partially immersed hole-outflow from holes with sharp edges (L/D≈1, L/D=2,5-3,0)- Time of tank evacuation-board-crested weirs-rectangular weirs-trapezoidal weirs (Cipolleti)triangular weirs-tubes in series-parallel tubes-equivalent length of tubes-tank systemnetwork distribution-calculation of the network-method of cross Hordy-hydraulic machines-examples-applications.

#### HIGHWAY ENGINEERING I

#### Aim of the course

The aim of the course is to acquire the knowledge of standards and regulations of road design engineering in order to be able to participate actively in the various stages of the road construction study (feasibility study, prestudy, final study, construction, repair, maintenance).

#### Course description

Introduction - Definitions. Categorisation of roads. Component parts of roads. Resistances in the vehicle movement. Straight-line and curved parts of roads. Movement of vehicles in straight-line parts of road. Movement of vehicles in curved parts of road. Horizontal fitting curves. Vertical fitting curves.

Basic characteristic elements of road. Horizontal design of road. Vertical design of road. Road location at the site map. Road location and environment. Road location in the space. The cross-section of road. Switchback manoeuvres.

Excavation works. Movement and distribution of excavation earth. Study of single and multi level road intersections. Urban road elements.

#### **REINFORCED CONCRETE**

#### Aim of the course

The aim of the course is to transfer to the students the basic knowledge the mechanical properties and applications of reinforced concrete, giving particular emphasis in the design methodology of the buildings core such as slab, beams and columns.

#### Course description

Design and analysis of reinforced concrete sections at the ultimate limit state against axial load, flexure and shear. Reinforcement detailing. Design of continuous slabs, beams and columns.

#### HYDROLOGY – GROUND WATER ENGINEERING

#### Aim of the course

The aim of the course is to transfer hydrological principles, management of water resources, construction and dimensioning of technical works based on hydrological data to students.

#### Course description

Hydrological cycle, measurement and analysis of rainfall, evaporation, infiltration, runoff models, transport models, retention models, finding functions in the region, the unit hydrograph method, finding of the unit hydrograph, application of unit hydrograph as a function of area, dimensioning of a flood channel, sustainable technologies in design engineering with hydrological data planning, wastewater treated reusable, irrigations, pluvial.

#### CONSTRUCTION LEGISLATION

#### Aim of the course

The aim of the course is provide students with technical legislation principles at the realization of technical projects.

#### Course description

Presentation of the basic public works legislation (Law 1418/84, Presidential Decree 609/85, Law 1650/86, Law 1577/85, Presidential Decree 318/94). The impact of legislation on the practice of technical profession and the construction of technical works.

#### <u>5<sup>th</sup>SEMESTER COURSES</u>

#### **ROCK MECHANICS – TUNNELS**

#### Aim of the course

The course aims to make students familiar with rock material and rockmass, laboratory and in-situ mechanical properties of intact rocks, discontinuities and rock masses, slope stability analysis methods, and tunnels and tunnelling: stress analysis, types of tunnels, construction methods, support measures.

#### Course description

Rock material and rock mass. Classification of rock masses. Laboratory and in-situ tests. Shear strength of rock discontinuities. Slope stability. Tunnels and tunnelling. Types of tunnels. Analysis of stresses around a tunnel. Geometrical characteristics. Geotechnical characterization. Construction methods- cut and cover, TBM, NATM. Design of support measures. Applications.

#### HIGHWAY ENGINEERING II

#### Aim of the course

The aim of the course is to familiarize students with the implementation of a road study. The students are taught the construction methodology, the organization of the work involved, choice and control of materials used, machinery, as well as methods of constructing individual parts of a road (excavation - embankments - pavement) of all major civil works.

#### Course description

Soil mechanics elements / highway soil tests. Soil classification. Road construction stages. Earth movement design (Bruckner). Earthworks. Type of pavements. Design of pavements. Bituminous pavements. Deterioration and maintenance of pavements. Calculation of pavement depth.

#### CONSTRUCTION SITE ORGANIZATION

#### Aim of the course

The main target of this course is to introduce students to the methods that are used in the planning and control of construction projects. The management tools provided combined with network techniques provide students with logical, practical and easily identifiable methods for improving control, safety and quality of project and increasing the chances of completing on time.

#### Course description

The course syllabus includes:

- Generic work breakdown structure
- ➢ Gantt diagrams, critical path methods under the name of CPM, CPA and PERT
- Interrelation between cost/ time, resource allocation and cash flow programme during the project planning phase.
- Control and management of the project

#### TECHNICAL AND FINANCIAL ANALYSIS OF PROJECTS

#### Aim of the course

The aim of the course is:

- ➤ To promote the skills of quantity survey engineering related to common construction projects, according to the Greek legislation and practice.
- To achieve comprehensive knowledge of specific construction projects, to organize and manage the project's drawings, and the overall quantity survey material.
- > To understand the scopes, the potentials and the financial and construction practices of contemporary construction companies.

Methods of common practices of quantity survey engineering and cost estimation and calculation. Cost estimation methods for technical projects. Cost optimization algorithm. Expenditure budget. Expected profit. Bid strategy. Investment policy of technical enterprises. Cost-effectiveness of technical equipment. Expenditure curve and flowchart curve. Drafting conventional budget of technical projects.

### WATER SUPPLY PROJECTS

#### Aim of the course

The aim of the course is to acquiring the necessary skills for students so they can meet the demands of work at the study of water distribution systems (catchments-Interior-Exterior-Aqueduct-Cleaning water) and at the level of construction related projects.

#### Course description

The first part addresses the issue of water abstraction and quality of water. The second part addresses the problem of determining the water needs of towns. The third part examines in detail the study of water projects (external aqueduct carrying water by gravity and pumping - volume adjustment tank - storage - distribution {radial-closed-open}). Design - sizing - hydraulic calculations. Finally the fourth part addresses the problem of improving water quality (sedimentation, filtration, disinfection, sterilization, etc.).

# <u>6<sup>th</sup>SEMESTER COURSES</u>

#### SEWAGE SYSTEMS PROJECTS

#### Aim of the course

The aim of the course is to make students capable of designing and supervising the construction of sewage networks and wastewater treatment plants

#### Course description

Sewage networks. (Introduction to pantoroic and separative drainage system). Rainfall quantity, rainfall discharge, rainfall rate. Calculation methods for rainwater. Rational method. Estimation of sewer-groundwater infiltration, pumping sewage. Drains (type tubes. Forms sections. Check resistance of conductors). Construction (materials-Transfer-shoring excavation slope-fitting-pipe-filling problems in construction). Maintenance (Cleaning methods, systems security, video monitoring). Ancillary structures (mouth-catchment wells, surface tension). Discharge Projects.

#### **HIGHWAY PROJECTS**

#### Aim of the course

The aim of the course is the design of technical projects required for the construction of a road.

#### Course description

Drainage Projects. Sewage Works. Culverts. Retaining walls. Seismic design.

# 7<sup>th</sup> SEMESTER COURSES

## **ENVIRONMENTAL DESIGN OF PROJECTS**

Aim of the course

The aim of the course is to make any student being able of understanding, consolidating and using the separated issues in order to understand the relation between the technical works and the environment and the necessity for sustainable development and natural resources management, to know the European and Greek legal framework of environment protection management, to assess the environmental impacts due to the infrastructure projects construction, to know the legislation, the phases and the content of the Environmental Impacts Studies (EIS) and to elaborate Environmental Impacts Studies for infrastructure projects.

#### Course description

Environment. Natural resources. Sustainable development and natural resources management. European and Greek legal framework for environment protection. Natural environment and manmade activities. Pollution, Environmental pressures form the technical works construction. Assessment of environmental impacts. Environmental Impacts Studies (EIS). EIS necessity and legislation. Stakeholders. Phases (planning preliminary approval, environmental terms approval) and content of an EIS. EIS examples. EIS implementation in infrastructure projects.

## FOREIGN LANGUAGE – TERMINOLOGY

#### Aim of the course

The aim of the course is to give students the opportunity to acquire the appropriate background that will enable them to read and understand technical texts, as well as communicate with scientists in English.

#### Course description

Terminology. Translation of terminology documents. Verbal exercises aimed at understanding and consolidating knowledge.

# SAFETY AT WORK

Aim of the course

The course aims to make students capable of:

- > Understanding the concepts of professional and scientific ethics and
- > Be aware of security measures to be taken to protect workers.

#### Course description

Ethics of the profession of Civil Infrastructure Engineer. Decisions and resulting responsibilities. The dilemmas and moral dimension. The intellectual property. Health and safety. Legal and administrative framework. Responsible role. Accidents. Responsibilities. Statistics of accidents. Sudden illness. Industrial diseases and sites. Personal Health Workers. Adverse weather conditions. Physical, chemical and mechanical hazards. Protective measures in general or individually. Psychology of work. Selection of employees. Fire. Safety of workers in infrastructure projects. First Aid.

# <u>COMPULSORY ELECTIVE COURSES (CE)</u>

# DESIGN AND CONSTRUCTION OF WASTE TREATMENT INSTALLATIONS

Aim of the course

The aim of the course is to make students capable of designing waste treatment plants.

#### Course description

Water pollution (water quality, forms of pollution, pollution of rivers, lakes, groundwater pollution control, waste decomposition). Waste water treatment plants. Mechanical cleaning. Dimensioning and design of tanks. Organic cleaning (biofilters, biological towers and discs etc). Method of active sludge, aeration, oxidation ditch. Control and removal of nitrogen and phosphorus. sludge. digester

#### **IRRIGATION SYSTEMS – DRAINAGE SYSTEMS**

Aim of the course

The aim of the course is to make students capable of designing irrigation networks (individual, collective), drainage networks.

#### Course description

The first part of the course deals with introductory concepts and knowledge about the needs of crops in water, the water movement in soil, water storing capacity of the soil and available water for plants.

The second part examines in detail the collective irrigation networks and free curriculum with emphasis on demand irrigation networks. (Design-benefits-sizing, hydraulic calculations - ensuring that the required hydraulic load). Alongside an extensive report on the operation of pumping stations is provided.

The third part examines the drainage networks (networks open channel leveldimensional drawing)

#### **RIVER TRAINING**

Aim of the course

The aim of the course is to facilitate students with the necessary knowledge for the design and construction of rivers and streams restoration projects.

#### Course description

In the first part the basic concepts of watershed are given (physical characteristics, ground erosion, discharge transport and illuviations).

The second part deals with the estimation of the flood discharge.

The third part deals with the development of hydraulic of rivers and streams as well as the approach to the problem of the transport of sediments in streams.

The fourth part deals with the development of hydraulic projects, the restoration of the streams (materials-type of projects to protect the side slope and the bed).

# HYDRODYNAMIC PROJECTS

#### Aim of the course

The aim of the course is to facilitate students with the methods of calculation of different types of dams.

The course includes the following sections:

- ▶ <u>Introduction</u>: General, types of dams, dams in Greece.
- Solid gravity dams: Forces, resistance to overturning and sliding, developed forces in the base of the dam, heat hydration, freezing of concrete, construction.
- > <u>Hollow gravity dams</u>: Types, advantages-disadvantages.
- ▶ <u>Buttress dams</u>: Types, wall and buttresses.
- Arc dams: Types, dams with constant radius, dams with constant angle, dams with changeable radius and angle, calculation methods-active arcs-columns, arcs-testing loading, finite elements, graphical method.
- Earthfill dams: Types of earthfill dams, failures, type-height of dam, width of crest and foundation- inclination of dam sides- core, filters, protection of sides, foundation in rock and sand, calculation of filtration, saturation line, application and calculation of filtration and homogenous dam with drainage layer and heterogenous dam, construction, control instruments.

# HARBOUR PROJECTS

#### Aim of the course

The aim of the course is the acquisition of knowledge on the design of harbours and coastal protection structures, as well as on wave mechanics, coastal hydrodynamics and coastal processes.

#### Course description

Theory of gravity waves of 1st order. Basic characteristics of gravity waves. Wave propagation in shallow, deep and intermediate waters. Wave propagation in coastal zone, refraction, diffraction. Wave propagation in coastal zone: wave shoaling, reflection, wave breaking, run up. Wind wave generation, development and prediction. Statistical study of waves. Types of harbour works (parallel και vertical to the coast). Breakwaters. Jetties. Bridges. Seawalls. Hydrodynamic loads on submerged bodies, submarine outfalls, vertical walls. Design and Calculation, Stability Control of harbour structures. Structures with vertical walls and inclined breakwaters. Theories of coastal sediment transport and balance of sediments. Morphological retroactions from coastal structures.

#### TRANSPORT ENGINEERING

#### Aim of the course

The aim of the course is the presentation and analysis of the concepts that underpin the theoretical basis of Transportation Planning and Traffic Engineering with special emphasis on urban road transport.

#### Course description

Traffic engineer's work and traffic/transportation project. Traffic flow characteristics. Traffic signals design and traffic signs. Parking. Pedestrian flow. Traffic accidents. Traffic management. Transportation and environment. Transit.

# **RAILWAY ENGINEERING**

#### Aim of the course

The course aims to analyze the key concepts underpinning the design, development and construction of modern rail networks.

Elements of railways dynamics. Substructure – superstructure. Rail apparatus, rolling stock, signaling, service stations, railway operation.

# AIRPORT DESIGN PROJECTS

#### Aim of the course

The course aims at presenting the general principles of airport infrastructure design; to give to students a sufficient level of acquaintance with the subject; and offer an overview of innovations and developments in the field of airport design.

#### Course description

Air transport characteristics. Aircraft characteristics. Air traffic control. Airport location. Landside and airside airport design. Operational criteria review. Runway design. Functional airport facilities.

## **BRIDGE ENGINEERING**

#### Aim of the course

The course aims at making students capable of designing, constructing and quantity surveying of several types of bridges made of concrete, steel, wood.

#### Course description

Introduction to bridges, bridge classification, bridge types, materials, loads, load combinations, structural analysis, codes of practice, bearings, expansion joints, construction methods.

#### EARTHQUAKE RESISTANT DESIGN OF STRUCTURES

#### Aim of the course

The course aims to familiarise students with the basic principles of earthquakes and the their effects to structures, be able to recognise and resolve problems due to earthquakes, and to apply practical methods in the design of foundations

#### Course description

General knowledge and principles about earthquakes and seismology. Equation of motion of Single Degree Of Freedom (SDOF) systems. Forced vibrations of MDOF systems, damping, natural periods and normal modes. Modelling of structures and seismic loads for dynamic analyses. Dynamic loading and response of structures. Basic concepts of seismic analysis of structures. Seismic analysis methods and applications with the existing Seismic Regulations for Construction. Basic principles of structures repair and strengthening.

# **OPTIONAL COURSES**

#### **BUSINESS MANAGEMENT**

Aim of the course

The aim of the course is to give students the potentials to acquire the necessary knowledge in business management.

Basic management concepts. Types of businesses and alliances. The environment of the company. The function of planning: objectives, strategies. Organization, division, specialization, segmentation, power, decentralization, coordination, organizational culture, etc. Human resources management. Motivation, leadership, communication and working groups. Monitoring functionality.

### **OPERATIONAL RESEARCH**

#### Aim of the course

This aim of the course is the understanding of consumer behavior and business with the implementation of fundamental economic concepts and laws. The approach and analysis of the reasons for creating the demand and supply entities and the formation of the market.

#### Course description

The concept of demand and consumer behaviour. The Law and the curve of demand. The concept of production. Law and the supply curve. Formation of values. The elasticity of demand and supply. Calculation and types of flexibility. The function of production. The concepts and the calculation of average and marginal cost and average and marginal product. Full competition, monopoly, monopolistic competition and oligopoly. The demand curve, revenue, costs and short-and long-term balance of the enterprise market in any form

#### ENTREPRENEURSHIP

#### Aim of the course

The aim of the course is to give students the potentials to acquire the necessary knowledge and develop the necessary skills in order to create their own business, to organize reports and choose innovative ideas and business plans.

#### Course description

The meaning of "entrepreneurship". Establishment, organization and operation of a new business. Incentives for the creation of new business. Means of funding. Business environment. Business plan. Starting a new business activity. Learning how to write a business plan. Business ideas that can be applied in the field of specialization. Application of new technologies in entrepreneurship. E-commerce. Construction companies. Companies for environmental and power issues. Selection of innovative ideas.

## 6. DEGREE ANNEX

The A.T.E.I of Thessaloniki provides to each Degree Awarded an Annex as follows which is based on the sample provided by the European Commission, the European Council and UNESCO/CEPES. The purpose of the Degree Annex is to provide sufficient independent information of the improvement of international "transparency and fair academic and occupational acknowledgement of educational degrees (diplomas, degrees, certifications etc.).

It was designed to provide a description of the field, level, background, content and the status of the courses that were successfully completed by the person whose name is on the original degree to which this annex is attached.

The annex does not evaluate the value of the degree nor does it contain any declarations of equality to other degrees or suggestions regarding international acknowledgement of the degree.

Where no information is provided relevant explanations are given.

#### **DEGREE ANNEX**



# SCHOOL OF TECHNOLOGICAL APPLICATIONS DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING

#### **DEGREE ANNEX**

- 1. **IDENTITY INFORMATION OF THE DEGREE HOLDER**
- 1.1 Surname:
- Name: 1.2
- 1.3 Father's first name:
- 1.4 Date of birth
- Student identification number or code: 1.5
- **INFORMATION REGARDING THE DEGREE** 2.
- 2.1 Type of degree in the original language 1<sup>st</sup> Degree (Ptihio)
  - Academic field
- 2.2 Engineering – Civil Infrastructure Engineering
- 2.3 Name and status of awarding Institution Alexander Technological Educational Institution, Higher Educational Institution, Legal Entity governed by public law
- 2.4 Name and status of teaching Institution Alexander Technological Educational Institution, Higher Educational Institution, Legal Entity governed by public law
- 2.5 **Teaching/ examination language** Greek
- **INFORMATION REGARDING THE DEGREE LEVEL** 3.
- 3.1 **Degree level** Basic higher education degree (Bachelor degree level) Level 5a (according to UNESCO's ISCED system

# **3.2** Official course duration

Duration in years:	4
Weeks per year:	38
ECTS teaching units:	240
Total work load:	6000 hours
Internship:	6 month internship within the program duration

# **3.3 Entry requirements:**

General Highschool degree and national examinations (90% of first year students) or a Highschool degree from a technical education highschool and national examinations (10% of first year students)

# 4. INFORMATION REGARDING THE CONTENT AND RESULTS OF THE ACADEMIC COURSE

# 4.1 Type of course

Full Time

## 4.2 Course Requirements

The Department of Civil Infrastructure Engineering produces Civil Infrastructure Engineers capable of solving design, construction and management problems regarding transport, hydraulic, geotechnical and environmental infrastructure projects

According to the A.T.E.I of Thessaloniki Course Regulation, the student that achieves the following is entitled to be awarded the Course Degree:

- Successfully attends all compulsory (core and elective courses) and relevant non –compulsory courses
- Attains 240 ECTS units
- Achieves acceptance of his/her dissertation
- Completes the 6 month internship

#### 4.3 Course Details

	Basic Courses (BC)			
No	COURSE	Semester	ECTS	Mark
1.	Mathematics	1	6	
2.	Physics	1	5	
3.	Chemical Technology	1	5	
4.	Technical Drawing	1	2	
5.	Structural Analysis	1	7	
6.	Introduction to Computers	1	5	
7.	Applied Mathematics	2	6	
8.	Special Topics in Physics	2	5	
9.	Materials Technology	2	5	
10.	Computer Programming	2	2	
	Total		48	

	Tuvano	e Courses (A		
No	COURSE	Semester	ECTS	Mark
1.	Surveying	2	6	
2.	Strength of Materials	2	6	
3.	Soil Mechanics I	3	5	
4.	Hydraulics I	3	5.5	
5.	Applied Structural Analysis	3	5	
6.	Engineering Geology	3	4.5	
7.	Construction Plants and Machines	3	4.5	
8.	Special Topics in Surveying	3	5.5	
9.	Soil Mechanics II	4	5	
10.	Hydraulics II	4	5	
11.	Highway I	4	5	
12.	Reinforced Concrete	4	6	
13.	Hydrology – Ground Water Engineering	4	4.5	
	Total		67.5	

#### Advance Courses (AC)

### **Core Specialization Courses (SC)**

No	COURSE	Semester	ECTS	Mark
1.	Rock Mechanics-Tunnels	5	5	
2.	Highway Engineering II	5	4.5	
3.	Construction Site Management	5	4.5	
4.	Water Supply projects	5	6	
5.	Elective SC-1	5	5.5	
6.	Sewage Systems Projects	6	5	
7.	Highway Projects	6	7	
8.	Elective SC-2	6	5.5	
9.	Elective SC-3	6	5.5	
10.	Environmental Project Design	7	7	
11.	Foreign Language– Terminology	7	5	
12.	Elective SC-4	7	5.5	
12.	Elective SC-4	7	5.5	
13.	Internship (*)	8	10	
14.	Dissertation (**)	8	20	
15.	Total	0	101.5	

(\*) The Internship ( 6 months) was carried out at

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(\*\*) Title of Dissertation

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Elective	Specialization	courses	(ESC)
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	Elective opecialization courses (E		
No	COURSE	ECTS	Mark
1.	Transport Engineering	5.5	
2.	Harbour Projects	5.5	
3.	Railway Engineering	5.5	
4.	Airport Design Projects	5.5	
5.	Airport Design Projects	5.5	
6.	River Engineering	5.5	
7.	Bridge Engineering	5.5	
8.	Irrigation Systems – Drainage Systems	5.5	
9.	Earthquake Resistant Design of Structures	5.5	
10.	Design and Construction of Waste Treatment	5.5	
	Installations	5.5	
	Total	55	

#### Management – Economics- Legislation- Humanities courses (MELH)

					( )
N	No	COURSE	Semester	ECTS	Mark
	1.	Construction Legislation	4	4.5	
	2.	Technical and Financial Analysis of Projects	5	4.5	
	3.	MELH (Elective)		7	
	4.	Safety at Work	7	7	
		Total		23	

# Management – Economics- Legislation- Humanities elective courses (MELH)

No	COURSE	ECTS	Mark
1.	Business Management	7	
2.	Operational Research	7	
3.	Entrepreneurship	7	
	Total	21	

#### **Optional Courses**

No	COURSE	HOURS	Mark
1.	Computer Aided Analysis of Hydraulic Works	2	
2.	Geographical Information Systems	2	
3.	Computer Aided Geotechnical Engineering	3	
4.	Computer Aided Project Management	2	
5.	Infrastructure Projects – Land Planning	2	
6.	Environmental Impact Design	2	
7.	Computer Aided Design of Tunnels	2	
8.	Foreign Language I	2	
9.	Foreign Language II	2	
10.	Computer Aided Highway Engineering	2	
11.	Environmental Geotechnics	2	
12.	Regional Development	2	
13.	Computer Aided Budgeting and Costing of	2	
	Construction Projects	2	
14.	Computer Aided Technical Drawing	3	
15.	Computer Aided Surveying	2	
	Total	32	

# 4.4 Grading System

According to the Course Regulation, the grading system is based on a 10 point system as follows:

8.50 - 10.00	:	"Excellent"
6.50 - 8.49	:	"Very Good"
5.00 - 6.49	:	"Good"
4.00 - 4.99	:	"Unsatisfactory"
0.00 - 3.99	:	"Rejection"
Eastha maa	a of 1	as mulation of an in

For the successful completion of an individual course a grade greater than or equal to 5.0 must be achieved.

For more information see : <u>www.teithe.gr</u>

#### General Classification of the Degree (in the original Greek language)

Each student receives an individual classification of his degree (ex. 8.2 Very Good)

# 5. INFORMATION REGARDING THE USEFULNESS OF THE DEGREE

## 5.1 Access to further studies

The Degree awarded by the Department provides accessibility to further education for the obtainments of master and PhD degrees.

#### Job opportunities

Graduates from the Department can work either individually or in collaboration with other scientists and engineers on issues relating to the solving of design, construction and management problems regarding transport, hydraulic, geotechnical and environmental infrastructure projects

The degree leads to a legal occupation according to article 25 of Law 1404/1983.

Additional information: (P.D. 318/94) Occupational rights of Civil Infrastructure Engineers) and URL: www.cie.teithe.gr

# 6. ADDITIONAL INFORMATION

#### 6.1 Additional Information

#### 6.2 Other sources of information

- Ministry of Education:
- A.T.E.I.Th:
- Department web site:

http://www.minedu.gov.gr www.teithe.gr

- www.cie.teithe.gr
- Postal Address
   Department of Civil Infrastructure Engineering
   P.O. Box 141
   GR 57400 Sindos Thessaloniki
   Greece
   Tel. +30 2310 791252
   Fax: +30 2310 791252

# 7. ANNEX CERTIFICATION

# 8. INFORMATION REGARDING THE NATIONAL SYSTEM OF HIGHER EDUCATION

Public higher education is divided into Universities and Technological Education Institutes (TEI). Students are admitted to these Institutes according to their performance at national level examinations taking place at the second and third grade of Lykeio. Additionally, students are admitted to the Hellenic Open University upon the completion of the 22 year of age by drawing lots.

Higher education is characterized by the fixed length of study, which is 4 years for the Technological Educational Institutes, and 4, 5, 6 years for the Universities, the Polytechnics, the Higher School of Arts.

As a consequence of the classification of the education institutions, a title (schoolleaving certificate, degree etc.) is compulsory for students at each education level in order to continue to the next.

\* A detailed description of the Greek Education System is offered in EURYBASE, the EURYDICE database of the European Education Systems. http://www.eurydice.org http://www.eurydice.org/Eurybase/frameset\_eurybase.html

## 7. USEFUL TELEPHONES AND ADDRESSES

<b>Telephone Centre</b>	+30 2310 791 111 / 001
Lodge	+30 2310 791 100

## 7.1. POSTAL ADDRESS

Alexander Technological Educational Institute of Thessaloniki School of Technological Applications Department of Civil Infrastructure Engineering P.O Box 141 GR - 57400 Thessaloniki Greece

Email: <a href="mailto:simb-tei@admin.teithe.gr">simb-tei@admin.teithe.gr</a>

# 7.2. TELEPHONES AND E-MAIL OF ADMINISTRATIVE AND TEACHING STAFF

#### **A. ADMINISTRATION**

Chairman of the A.T.E.I.TH	+30 2310 791 101
Director of the School of Technological Applications	+30 2310 791 250
Head of the Department of Civil Infrastructure Engineering	+30 2310 791 261

#### **B. SERVICES**

General Secretary of A.T.E.I.TH	+30 2310 791 110
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Secretary of the Department of Civil Infrastructure Engineering	+30 2310 791 252
Protocol Office of A.T.E.I.TH	+30 2310 791 112
Email: protocol@admin.teithe.gr	
Office for Public and International Relationships	+30 2310 791 119 / 120
Email: pubrel@admin.teithe.gr	
Careers Office	+30 2310 791 480/ 481
Email: career@admin.teithe.gr	/ 482
Socrates Office	+30 2310 791 479
Email: socrates@teithe.gr	

#### **C. HALLS OF RESIDENCE**

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/ 392
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+30 2310 526 543

# D. TEACHING STAFF THE DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING

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5.	Konstantinidis Dimitrios	dkon@cie.teithe.gr	+302310 791 250 &
		-	+302310 791 277
6.	Papaliangkas Theodosios	papaliag@cie.teithe.gr	+302310 791 431
7.	Pechlivanidis Georgios	pehliigo@cie.teithe.gr	+302310 791 271
8.	Samaras Grigorios	samgreg@cie.teithe.gr	+302310 791 426
9.	Svolopoulos Ioannis	svolop@cie.teithe.gr	+302310 791 271
10	Vakalfotis Konstantinos	vakalfot@cie.teithe.gr	+302310 791 282
11.	Zagkaretos Ioannis	izagkar@cie.teithe.gr	+302310 791 432

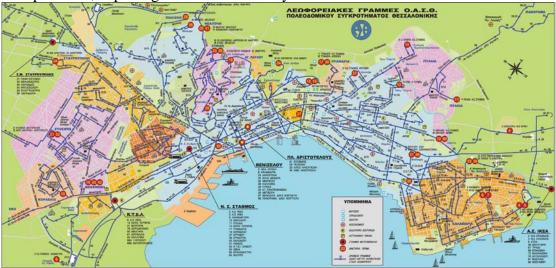
# E. SPECIAL LABORATORY STAFF

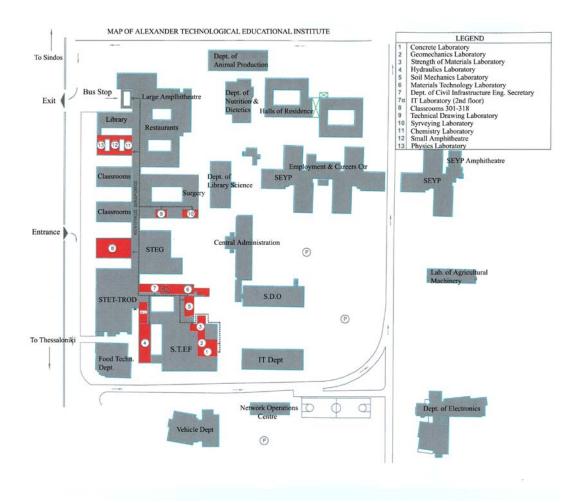
<b>No.</b>	<b>Name</b>	Email address	<b>Telephone</b>
1.	Mentekidis Socrates	mentekas@cie.teithe.gr	+302310 791 432
3.	Tzoutzis Ioannis	tzouio@cie.teithe.gr	+302310 791 251
<b>F. A</b> <b>No.</b> 1. 2.	<b>DMINISTRATIVE STAFF Name</b> Kiriklidis Eftathios Vainakis Iraklis	<b>Email address</b> vainakis@admin.teithe.gr gramcie@teithe.gr	<b>Telephone</b> +302310 791 252 +302310 791 252

#### 8. MAPS AND DIRECTIONS

Access in the A.T.E.I.TH Campus is possible via the National road Thessaloniki - Athens at the Sindos Industrial Region Interchange (9 km approximately from Thessaloniki city centre). A.T.E.I.TH is about 1 km away from that Interchange in the right

Access to A.T.E.I.TH campus is possible via Bus no. 52 of Thessaloniki urban transportation, departing at the New Railway Station





#### MEMORANDUM

## 1. A.T.E.I.TH ADMINISTRATION

### **SECRETARY OFFICE OF FACULTIES - DEPARTMENTS**

- 2. School of Business Administration and Economics (S.D.O)
- 3. School of Health and Medical Care (S.E.Y.P)
- 4. School of Agricultural Technology (S.TE.G)
- 5. School of Technological Applications (S.T.EF)
- 6. School of Food Technology and Nutrition (S.TE.TRO.D)

# ADMINISTRATION AREAS - COMMON AREAS

- 7. Careers Office
- 8. Socrates Office
- 9. Central Library
- 10. Halls of Residence
- 11. Students Refectory
- 12. Central Canteen
- 13. Large Amphitheater
- 14. Small Amphitheater
- 15. "George Economou" Amphitheater
- 16. New Amphitheater
- 17. Staff Refectory
- 18. Gym
- 19. Sports Facilities
- 20. Church
- 21. Technical Support Office
- 22. Medical Care

**B. CENTRAL LIBRARY** (planned area to be constructed in the future)

# P CAR PARKING AREAS

- 2a. Department of Library Science and Information Systems (S.D.O)
- 2b. Department of Marketing and Advertising (S.D.O)
- 2c. Department of Accountancy (S.D.O)
- 2d. Department of Touristic Industry (S.D.O)
- 3a. Department of Aesthetics and Cosmetology (S.E.Y.P)
- 3b. Department of Childhood Care and Education (S.E.Y.P)
- 3c. Department of Medical Laboratory Studies (S.E.Y.P)
- 3d. Department of Midwifery (S.E.Y.P)
- 3e. Department of Nursing (S.E.Y.P)
- 3f. Department of Physiotherapy (S.E.Y.P)
- 4a. Department of Farm Management (S.TE.G)
- 4b. Department of Animal Production (S.TE.G)
- 4c. Department of Plant Production (S.TE.G)
- 4d. Laboratory of Agricultural Machinery (S.TE.G)
- 5a. Department of Automation (S.T.EF)
- 5b. Department of Electronics (S.T.EF)

5c. Department of General Department of Science (S.T.EF)

- 5d. Department of Vehicle Technology (S.T.EF)
- 5e. Department of Informatics (S.T.EF)
- 5f. Department of Civil Infrastructure Engineering (S.T.EF)

6a. Department of Nutrition and Dietetics (S.TE.TRO.D)

- 6b. Department of Food Technology (S.TE.TRO.D)
- 23. English Language Teaching Rooms Laboratory
- 24. Teaching Rooms 101 121
- 25. Teaching Rooms 201 221
- 26. Teaching Rooms 201 321



# ALEXANDER TECHNOLOGICAL INSTITUTE OF THESSALONIKI SCHOOL OF TECHNOLOGICAL APPLICATIONS

# **DEPARTMENT OF CIVIL INFRASTRUCTURE ENGINEERING**

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Η ΠΑΙΔΕΙΑ ΣΤΗΝ ΚΟΡΥΨΗ Επιχειρησιακό Πρόγραμμα Εκπαίδευσης και Αρχικής Επαγγελματικής Κατάρτισης