



**NATIONAL TECHNICAL UNIVERSITY OF ATHENS
SCHOOL OF MECHANICAL ENGINEERING**

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DIPLOMA SUPPLEMENT

This Diploma Supplement model was developed by the European Commission, the Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data, to improve the international 'transparency' and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification, to which this supplement is appended. It should be free from any value judgments, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should be given.

1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

- | | |
|-------------------------------------|-----------------------------------------------------------------|
| 1.1 Family name(s) | 1.2 Given name(s) |
| 1.3 Date of birth (DD/MM/YY) | 1.4 Student identification number or code (if available) |

2. INFORMATION IDENTIFYING THE QUALIFICATION

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 2.1 Title conferred (in original language)
DIPLOMA MECHANICAL ENGINEERING | 2.2 Main field(s) of study
Mechanical Engineering |
| 2.3 Institution awarding the qualification (in original language)
ETHNIKO METSOVIO POLYTECHNEIO (NATIONAL TECHNICAL UNIVERSITY OF ATHENS), STATE UNIVERSITY | 2.4 Name and status of institution (if different from 2.3) administering studies (in original language)
Same as in 2.3 |
| 2.5 Language(s) of instruction/examination
Greek | |

3. INFORMATION OF THE LEVEL OF THE QUALIFICATION

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| 3.1 Level of qualification
ONE TIER DEGREE OF 5 YEARS | 3.2 Duration of studies
Full-time studies: 5 years
Semesters: 10
ECTS credits: 300
Practical Training: optional |
| 3.3 Admission requirement(s)
Unified upper secondary education (Ενιαίο Λύκειο) degree and success in national entrance exams | |

4. INFORMATION OF THE CONTENTS AND RESULTS ACHIEVED

4.1 Mode of study

Full-time

4.2 Program requirements

To obtain the Diploma in Mechanical Engineering, the students are required to:

1. Register, attend and obtain passing grade in 65 semester courses (17 mandatory general courses + 29 mandatory core courses +19 specialization courses) + 2 mandatory foreign language courses. The ECTS units of all courses are reported in 4.3.
2. Register, work on, write up and successfully defend a Diploma Thesis.

4.3 Program details (e.g. modules or units studied), and individual grades/marks/credits obtained (if this information is available on an official transcript, it should be used here)

Modules examined and awarded a pass grade and the ones recognized or exempted from are listed below:

Diploma Thesis:

Grade:

ECTS: 30.0

CODE	MODULE/COURSE	SEMESTER	TYPE:	ECTS CREDITS	GRADE
	TITLE		Core/ /General/ Spec/Optional		
2013	Introduction to Mechanical Engineering	1	Core (Mandatory)		
2238	Introduction to Computer Science	1	General (Mandatory)		
2008	Mathematics A1 (or Mathematics I α)	1	General (Mandatory)		
2143	Mathematics A2 (or Mathematics I β)	1	General (Mandatory)		
2248	Mechanics A (Statics, Introduction to Mechanics of Deformable Body)	1	General (Mandatory)		
2012	Mechanical Design I	1	Core (Mandatory)		
2161	Chemistry	1	General (Mandatory)		
2199	Introduction to Philosophy	1	General (Optional)		
2048	History of Science	1	General (Optional)		
2050	History of Urban Culture and Technology	1	General (Optional)		
2221	Political Economy	1	General (Optional)		
2063	English language	1	Foreign Language		
2064	French language	1	Foreign Language		
2065	German language	1	Foreign Language		
2066	Italian language	1	Foreign Language		
2242	Electric Circuits and Systems	2	Core (Mandatory)		
2097	Thermodynamics I	2	Core (Mandatory)		
2292	Mathematics B	2	General (Mandatory)		
2010	Mechanics B (Mechanics of Deformable Body) or (Mechanics of Materials)	2	General (Mandatory)		
2147	Mechanical Design II	2	Core (Mandatory)		
2105	Engineering Materials	2	Core (Mandatory)		
2170	Physics	2	General (Mandatory)		
2117	English language	2	Foreign Language		
2118	French language	2	Foreign Language		
2119	German language	2	Foreign Language		
2120	Italian language	2	Foreign Language		
2200	Introduction to Mechanical Workshop Technology	3	Core (Mandatory)		

2245	Electromechanical Power Conversion Systems	3	Core (Mandatory)
2241	Operating Systems and Programming Languages	3	General (Mandatory)
2246	Mathematics C	3	General (Mandatory)
2247	Mechanics C (Kinematics, Dynamics)	3	General (Mandatory)
2167	Machine Elements I	3	Core (Mandatory)
2160	Engineering Economics I	3	Core (Mandatory)
2067	English language	3	Foreign Language
2268	French language	3	Foreign Language
2069	German language	3	Foreign Language
2070	Italian language	3	Foreign Language
2039	Industrial Electronics	4	Core (Mandatory)
2132	Heat Transfer I	4	Core (Mandatory)
2110	Fluid Mechanics I	4	Core (Mandatory)
2219	Mechanisms and Introduction to Mechanical Design	4	Core (Mandatory)
2078	Machine Elements II	4	Core (Mandatory)
2148	Numerical Analysis	4	General (Mandatory)
2121	English language	4	Foreign Language
2122	French language	4	Foreign Language
2123	German language	4	Foreign Language
2124	Italian language	4	Foreign Language
2021	Industrial Fluid Mechanics	5	Core (Mandatory)
2089	Machine Dynamics I	5	Core (Mandatory)
2045	Thermal Turbomachines	5	Core (Mandatory)
2086	Thermal Energy Conversion in Power Plants I & Laboratory 'H Steam Generating Units I & Laboratory	5	Core (Mandatory)
2156	Manufacturing Processes I	5	Core (Mandatory)
2079	Mechanical Measurements & Laboratory	5	Core (Mandatory)
2072	Production/Operation Management & Business Administration I	5	Core (Mandatory)
2029	Analysis of Mechanical Structures I	6	Core (Mandatory)
2007	Introduction to Automatic Control Systems	6	Core (Mandatory)
2030	Operational Research I	6	Core (Mandatory)
2093	Manufacturing Processes II	6	Core (Mandatory)
2032	Internal Combustion Engines I	6	Core (Mandatory)
2187	Environmental Technology	6	Core (Mandatory)
2131	Hydraulic Turbomachines	6	Core (Mandatory)
2192	Analysis of Mechanical Structures II	7	Spec (Mandatory)
2198	Data Bases	7	Spec (Mandatory)
2213	Quality Management	7	Spec (Mandatory)
2220	Machine Dynamics II	7	Spec (Mandatory)
2043	Thermodynamics I	7	Spec (Mandatory)
2197	Introduction to the Aircraft	7	Spec (Mandatory)
2031	Operational Research II	7	Spec (Mandatory)
2035	Machine Tools	7	Spec (Mandatory)
2260	Logistics (Transportation-Distribution)	7	Spec (Mandatory)
2174	Vehicles Design I	7	Spec (Mandatory)
2091	Internal Combustion Engines II	7	Spec (Mandatory)
2016	Fluid Mechanics II	7	Spec (Mandatory)
2023	Control Systems and Machine Regulation	7	Spec (Mandatory)

2169	High Pressure Hydraulic and Pneumatic Systems	7	Spec (Mandatory)
2251	Hydroelectric Power	7	Spec (Mandatory)
2075	Physical Principles of Nuclear Power Reactor Plants	7	Spec (Mandatory)
2211	Aerodynamics of Compressible Fluid	7	Spec (Optional)
2254	Interactions of ionizing radiations with matter	7	Spec (Optional)
2255	Industrial Applications of Nuclear Engineering	7	Spec (Optional)
2261	Energy Management	7	Spec (Optional)
2215	Introduction to Marketing	7	Spec (Optional)
2044	Thermodynamics Software	7	Spec (Optional)
2191	Heat Transfer II	7	Spec (Optional)
2253	Optimization Methods in Aerodynamics	7	Spec (Optional)
2252	New and Renewable Energy Sources	7	Spec (Optional)
2125	Business Games	7	Spec (Optional)
2189	Experimental Fluid Mechanics	7	Spec (Optional)
2259	Protection and surface Manufacturing Processes	7	Spec (Optional)
2258	Welding-Casting	7	Spec (Optional)
2081	Transport Phenomena	7	Spec (Optional)
2178	Wind Energy	8	Spec (Mandatory)
2202	Principles of Jet Propulsion	8	Spec (Mandatory)
2290	Industrial Installations	8	Spec (Mandatory)
2291	Operations & Maintenance	8	Spec (Mandatory)
2204	Lightweight Structures	8	Spec (Mandatory)
2162	Combustion Theory, Combustion Systems	8	Spec (Mandatory)
2244	Vehicle Design II	8	Spec (Mandatory)
2207	Dynamic Staining	8	Spec (Mandatory)
2128	Work Study and Elements of Economics	8	Spec (Mandatory)
2060	Non Conventional Manufacturing Processes	8	Spec (Mandatory)
	Production/Operation Management &	8	Spec (Mandatory)
2209	Business Administration II		
2210	Management Information Systems	8	Spec (Mandatory)
2126	Production Planning and Control I	8	Spec (Mandatory)
2001	Nuclear Power Reactor Set-up and Operation	8	Spec (Mandatory)
2222	Manufacturing Systems I	8	Spec (Mandatory)
	Computational Methods for Structural Mechanics	8	Spec (Mandatory)
2264			
2111	Computational Fluid Dynamics	8	Spec (Mandatory)
2195	Refrigeration I	8	Spec (Optional)
2022	Aerodynamics	8	Spec (Optional)
	Biomedical Engineering- Medical Imaging &	8	Spec (Optional)
2263	Radiotherapy		
2266	Tools and Dies	8	Spec (Optional)
2268	Occupational Safety and Health	8	Spec (Optional)
	Thermal Energy Conversion in Power Plants II	8	Spec (Optional)
2025			
2076	Radiation Protection and Dosimetry	8	Spec (Optional)
2249	Microprocessors Based Control	8	Spec (Optional)
	Gas Exchange & supercharging of Internal	8	Spec (Optional)
2285	Combustion Engines		
2269	Project Management	8	Spec (Optional)
2287	Nuclear Measurement Systems	8	Spec (Optional)

2100	Design of Thermal Turbomachines	8	Spec (Optional)
2194	Hydrodynamic Installations	8	Spec (Optional)
2186	Computational Methods for transport Phenomena	8	Spec (Optional)
2288	Computational Project	8	Spec (Optional)
2284	Environment and Development	8	OPTIONAL
2218	Aerolasticity and Aeroacoustics	9	Spec (Mandatory)
2212	Pollution Abatement Technology for Thermal Plants	9	Spec (Mandatory)
2232	Flight Dynamics	9	Spec (Mandatory)
2090	Operational Research Laboratory	9	Spec (Mandatory)
2036	Ergonomics	9	Spec (Mandatory)
2235	Advanced Materials	9	Spec (Mandatory)
2279	Electronic Commerce (E-Commerce)	9	Spec (Mandatory)
2182	Solar Energy	9	Spec (Mandatory)
2183	Air-Conditioning	9	Spec (Mandatory)
2216	Gas and Steam Turbing Operation	9	Spec (Mandatory)
2217	Aircraft Engine Operation	9	Spec (Mandatory)
2073	Production Planning and Control II	9	Spec (Mandatory)
2028	Elements of Law and Technical Legislation	9	Spec (Mandatory)
2289	Design for Manufacturing & Cost	9	Spec (Mandatory)
2042	Equipment and Systems of Thermal Processing	9	Spec (Mandatory)
2274	Intelligent Control Systems & Robotics	9	Spec (Mandatory)
2231	Biofluid-Mechanics and Biomedical Engineering	9	Spec (Optional)
2280	Gas Turbine Diagnostics	9	Spec (Optional)
2276	Biomechanics and Biomedical Engineering	9	Spec (Optional)
2272	Thermal Energy in Buildings	9	Spec (Optional)
2262	Thermal-Hydraulic Analysis of Nuclear Power Plants	9	Spec (Optional)
2233	Combustion/Pollution of Aircrafts Engines	9	Spec (Optional)
2236	Combustion/Pollution of Internal Combustion Engines	9	Spec (Optional)
2278	Micro-Nanotechnology	9	Spec (Optional)
2275	Radio environmental Analysis and Protection	9	Spec (Optional)
2277	Manufacturing Systems II	9	Spec (Optional)
2080	Hydraulic Turbomachines Design	9	Spec (Optional)
2267	Technology and Mechanics of Complex Materials	9	Spec (Optional)
2229	Engineering Economics II (Business Planning)	9	Spec (Optional)
2185	Computer Methods in Turbomachines	9	Spec (Optional)
2009	Refrigeration II	9	Spec (Optional)

ECTS Total: 300

4.4 Grading scheme and, if available, grade distribution guidance

The grades scale through which is calculated the academic performance of the students is a ten-point one (0-10) as follows:

9 - 10	EXCELLENT
7 - 8,99	VERY GOOD
5 - 6,99	GOOD

4.5 Overall classification of the qualification (in original language)

e.g. 8.23 (EIGHT POINT TWENTY THREE) VERY GOOD (LIAN KALOS, ΛΙΑΝ ΚΑΛΟΣ)

Minimum passing grade is: 5. Minimum passing grade for the Diploma Thesis is: 5.5
The final grade of the Diploma degree is calculated from the sum:

- The mean value of all course grades contributing 80/100 to the final grade and
- The grade of the Diploma Thesis, contributing 20/100 to the final grade.

The practical training does not count in the final grade for the Diploma degree.

5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to further study

Access to second cycle of studies

5.2 Professional status (if applicable)

The Diploma degree in an engineering discipline entitles its holder to the legally protected professional title "Engineer" and to exercise professional work in the field(s) of engineering for which the degree was awarded. Graduates of the School are licensed to exercise the profession of Chemical Engineering by the Technical Chamber of Greece, after passing exams.

6. ADDITIONAL INFORMATION

6.1 Other information

5-week Practical Training which is co-funded by the Operational Program "Education and Lifelong Learning" (NSRF 2007-2013) from the Ministry of Education and Religious Affairs and the annual regular budget of NTUA.

Επιπλέον: αν έχει φύγει με ERASMUS, αναγράφεται εδώ:

From dd/mm/yyyy to dd/mm/yyyy the above mentioned graduate attended the courses of [name the department] of [name the university - country] within the frame of ERASMUS+. The modules successfully completed at the host institution correspond to [code] unit codes of the School of Chemical Engineering NTUA. Grades and the respective ECTSs are given in the tables of 4.3 above.

From dd/mm/yyyy to dd/mm/yyyy the above mentioned graduate performed his/her Practical Training in [name the department/enterprise] of [name the university - country] within the frame of ERASMUS+.

The School of Mechanical Engineering NTUA has undergone external evaluation from the Hellenic Quality Assurance Agency for Higher Education (H.Q.A.A. - A.DI.P.), in 2013. The Evaluation Report is available at the following URL address:

http://www.chemeng.ntua.gr/files/NTUA_School_of_Chemical%20Engineering-External_Evaluation-Final.pdf

6.2 Further information sources

- NATIONAL TECHNICAL UNIVERSITY OF ATHENS: <http://www.ntua.gr/>
- SCHOOL OF MECHANICAL ENGINEERING: <http://www.mech.ntua.gr/>
- MINISTRY OF EDUCATION AND RELIGIOUS AFFAIRS: <http://www.minedu.gov.gr/>
- TECHNICAL CHAMBER OF GREECE: <http://www.tcc.gr/>
- EUROPEAN COMMISSION: <http://www.ec.europa.eu/>
- NARIC: <http://www.doatap.gr/>
- <http://www.enic-naric.net/>

7. CERTIFICATION OF THE SUPPLEMENT

7.1 Date:

7.2 Name and Signature: Ilias Tatsiopoulos

7.3 Capacity: DEAN OF SCHOOL OF MECHANICAL ENGINEERING

7.4 Official stamp or seal:

8. INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

(i) Structure

According to the Law 3549/2007, higher education consists of two parallel sectors:

- a) the University sector (Universities, Polytechnics, Fine Arts Schools, the Open University) and
- b) Technological sector (Technological Education Institutions (TEI) and the School of Pedagogic and Technological Education).

The same law regulates issues concerning governance of higher education along the general lines of increased participation, greater transparency, accountability and increased autonomy.

There are also State Non-university Tertiary Institutes offering vocationally oriented courses of shorter duration (2 to 3 years) which operate under the authority of other Ministries.

(ii) Access

Entrance to the various Schools of the **Universities (Panepistimio)** and **Technological Education Institutions (Technologiko Ekpaideftiko Idryma - TEI)** depends on the general score obtained by Lyceum graduates on the Certificate, on the number of available places (numerus clausus) and on the candidates' ranked preferences among schools and sections.

(iii) Qualifications

Students who successfully complete their studies in universities and TEI are awarded a *Ptychio* (first cycle degree). First cycle programs last from four years for most fields to five years for engineering and certain other applied science fields and six years for medicine. The *Ptychio* leads to employment or further study at the post-graduate level that includes the second cycle leading to the second degree, *Metaptychiako Diploma Eidikefsis* - equivalent to the *Master's degree* - and the third cycle leading to the doctorate degree, *Didaktoriko Diploma*.

Recent legislation on quality assurance in Higher Education, the Credit Transfer System and the Diploma Supplement defines the framework and criteria for evaluation of university departments and for certification of student degrees. These measures aim at promoting student mobility and contributing to the creation of a European Higher Education Area.

A detailed description of the Greek Education System is offered in:

- **EURYDICE ([hyyp://www.eurydice.org](http://www.eurydice.org)) database of the European Education Systems**
- http://eacea.ec.europa.eu/education/eurydice/documents/thematic_reports/122EN.pdf (pages 82,83)

<http://www.eurydice.org>