ACADEMIC YEAR

25
26

STUDY GUIDE

National Technical University of Athens

School of Civil Engineering

Athens, July 2025

Prologue

The School of Civil Engineering at the National Technical University of Athens (NTUA) stands out in Greece for its historical and contemporary significance. Established in 1887, it holds the distinction of being the inaugural engineering school in the nation's history. This pivotal moment marked a transformation of the Polytechnic from a vocational institution to a higher educational institution. Throughout its illustrious past, the School has maintained its operational continuity and consistently graduated engineers, even during challenging periods. The inaugural cohort of 13 civil engineers graduated in 1890. To this day, over 11,000 diplomas have been awarded.

Acknowledging its historical significance in Greece and its global recognition, the School of Civil Engineering equips the current generations of civil engineers with the skills to design and construct high-quality infrastructure and services that meet the evolving and intricate requirements of society. Within this context, the School, through its curriculum, aims to foster a human-centric approach to civil engineering, aligning itself with the principles of the circular economy, sustainable development, resilience, and climate adaptation.

View (from Stournari Street) of the Gini Building, constructed during the period 1930–35, which housed the School of Civil Engineering for the remainder of the 20th century until 2003.

The fundamental principles of the School's Curriculum include, among others:

- **Consistency with history**. The School remains steadfast in its commitment to the field delineated by its founding Law, namely to educate engineers "capable of constructing roads, bridges, railways, hydraulic structures, and buildings for both public and private purposes". Over the course of its history, the technological nature of its curriculum has consistently been a pivotal, strategic decision.

- **Unified five-year study program.** The traditional model of a unified five-year program leading to a diploma at the postgraduate level consistently aligns with the strategic choices of the School and, more broadly, of NTUA. This model is institutionalized as national law.

- **Balanced combination of theory and practice**. The School adheres to the traditional educational model, equipping its graduates with a robust theoretical background and extensive technological knowledge. This comprehensive education empowers them to effectively tackle real and challenging engineering problems.

- **Balanced development of knowledge in breadth and depth**. The overarching educational objective of civil engineering is underpinned by a robust curriculum comprising mandatory theoretical and technological courses. Specialisation is achieved through four distinct study tracks during the final semester: Structural, Hydraulic, Transportation, and Geotechnical Engineering. A diverse range of specialised elective courses is provided to students from all tracks, promoting interdisciplinary collaboration and fostering a comprehensive understanding of the field.

- **Inclusion of new technological subjects**. The curriculum further broadens the scope of civil engineering by incorporating technological courses in various areas, including: i. The application of information technology in engineering projects, ii. Advancements in materials science, iii. Renewable energy technologies, iv. Artificial intelligence applications, and v. Novel methodologies for probabilistic/stochastic design and risk analysis in both natural and artificial projects and systems.

- **Emphasis on laboratory courses.** The School's curriculum comprises mandatory lab courses, each conducted in one academic year. These courses are: i. Materials in the first year, ii. Structures and Geotechnics in the second year, iii. Water Resources in the third year and iv. Humanities in the fourth year. These courses are offered in both semesters, in small student groups. Attendance is mandatory attendance. In the fifth year, instead of a lab course, students have the option to choose a two-month Internship (regardless of specialisation). This Internship is conducted without a final exam or grade. Additionally, there is the Integrated Design Project course, which is differentiated by track. The final semester is dedicated to the Diploma Thesis, which can be undertaken in one of the School's 15 Laboratories.

- **Emphasis on active learning**. The curriculum places significant emphasis on active learning, facilitating students' engagement through exercises and projects under the guidance of the teaching staff.

- **Compact course schedule**. The curriculum structure, comprising core, track, elective, and laboratory courses, is supported by a compact timetable. Teaching typically concludes in the early afternoon, thereby avoiding late afternoon classes. During the late afternoon, classrooms remain open either for students' independent work on their projects or for the arrangement of informal educational activities.

NTUA School of Civil Engineering

The Curriculum achieves, on the one hand, the promotion of the wide spectrum of activities of civil engineering and, on the other hand, the development of all those links between the individual subjects that ensure the coherence of field of study of civil engineering. The modern cutting-edge technological and professional fields, which are treated at the School, are the redesign, maintenance, strengthening, renewal and management of existing structures and infrastructure. New challenges are the development and application of new materials and techniques in construction, the use of renewable energy resources, the protection from natural hazards (earthquakes, floods, droughts), the activities of protection, restoration and upgrading of the environment in combination with anti-pollution technology, as well as the use of Artificial Intelligence, IT and smart devices, both for the more effective management of constructions, and for the operation of the infrastructure. The harmonious coexistence of development with the environment, and the promotion and preservation of cultural heritage are of particular importance in today's conditions.

Athens, July 2025

The new buildings of the School of Civil Engineering at the Zografou Campus, where the School has been located since 2003.

Contents

1. Structure and Activities 6
2. Curriculum 8
2.1 General Principles 8
2.2 Undergraduate Courses 10
3. Operation 20
3.1 General 20
3.2 Useful Information 20

1. Structure and Activities

The School of Civil Engineering at NTUA is organized into four (4) Departments that cover specific fields of the School's discipline, promoting both teaching and research. These are:

- Department of Structural Engineering
- Department of Water Resources and Environmental Engineering
- Department of Transportation and Traffic Infrastructure
- Department of Geotechnical Engineering

The fifteen (15) well-equipped Laboratories serve as units subordinated to the Departments or directly to the School, offering the most advanced specialization in the individual scientific and technological areas of Civil Engineering.

The governing bodies of the School are the Dean, the Deanery, and the General Assembly.

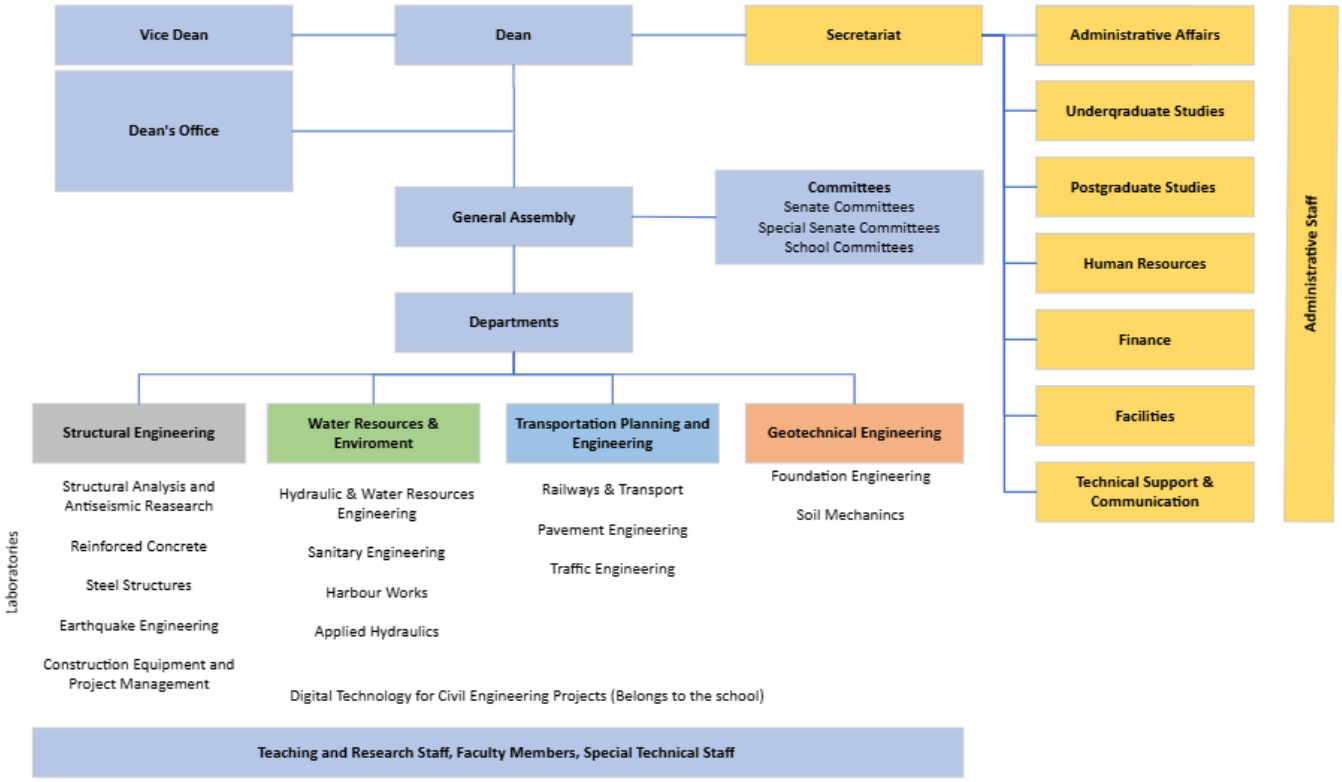

Figure 1: School Organizational Chart

The School employs 40 members of Academic Staff, 32 members of Laboratory Teaching Staff, and 38 members of Administrative Staff. The Departments and Laboratories of the School are active both in education and research, which are conducted within the framework of diploma and postgraduate theses, doctoral dissertations, and national, European, and international research projects.

Postgraduate programs also contribute to these activities. The School participates in various postgraduate programs co-organized by the nine Schools of NTUA. Three of these programs are administratively managed by the School of Civil Engineering in the fields of Structural Design and Analysis of Constructions, Infrastructure and Construction Project Management, and Water Resources Science and Technology. Furthermore, the School participates in the Interuniversity Erasmus Mundus Joint Master's Program Advanced Solid Mechanics (STRAINS), in collaboration with universities in France, Italy, Belgium, and Poland.

The activities of the Departments, Laboratories, and postgraduate programs are closely linked to the overall educational effort of the School, which is further supported by dedicated research staff. The educational and research needs of the School are accommodated in facilities covering approximately 40,000 square meters, comprising 11 buildings and one large auditorium (Figure 2).

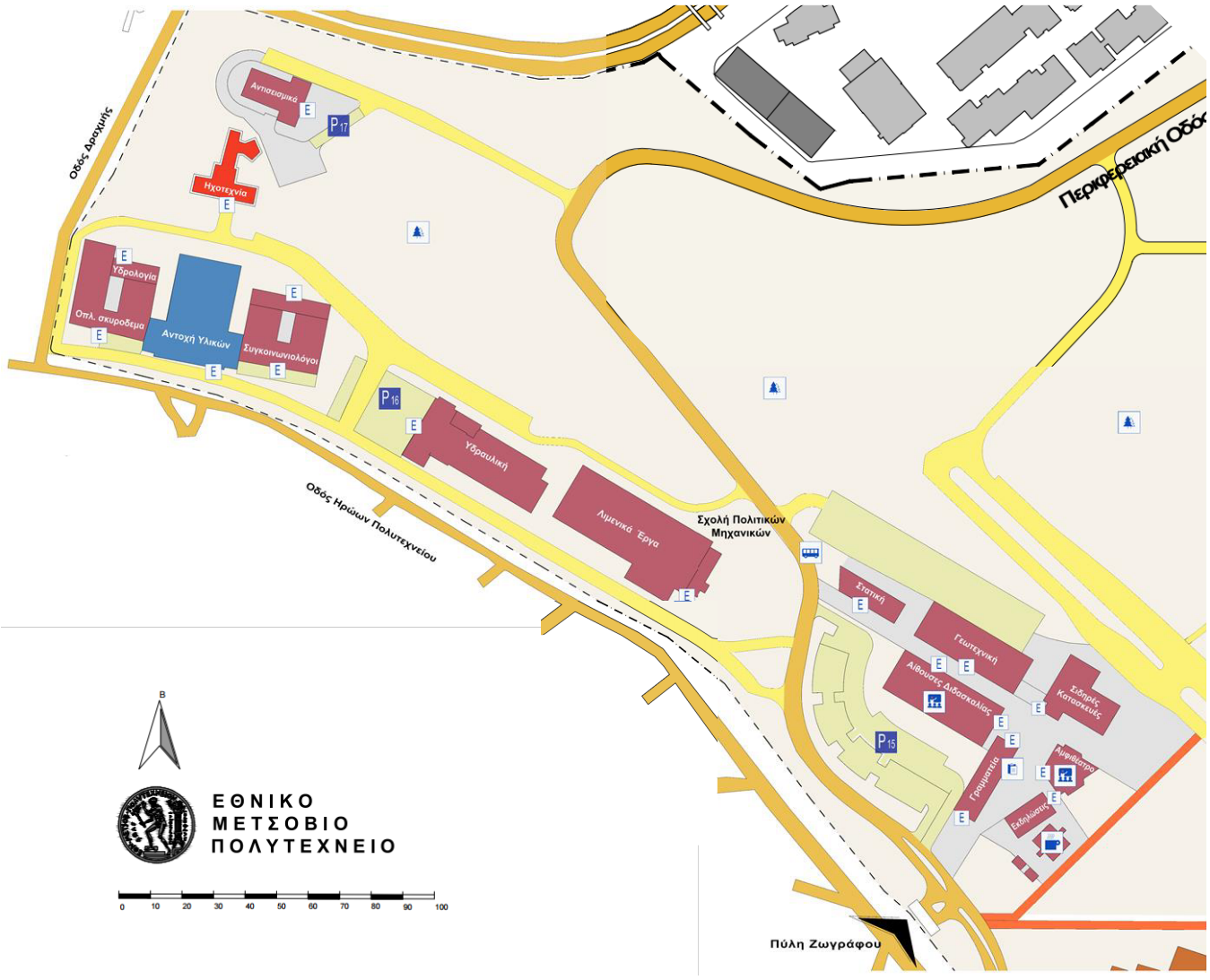

Figure 2: School Buildings Map.

2. Curriculum

2.1 General Principles

The academic programme comprises ten (10) semesters, which are prerequisites for the award of the diploma. The initial six (6) semesters are exclusively devoted to core courses. In the seventh semester, students are required to select a Specialisation (Structural, Hydraulic, Transportation, or Geotechnical) and subsequently follow the corresponding course programme. The successful completion of the courses culminates in the submission of a diploma thesis, which must have a duration of at least one (1) academic semester.

Completion of the requirements of the ten semesters leads to the award of a unified postgraduate-level degree (integrated master) in the field of Civil Engineering.

The curriculum includes courses designed to ensure a solid foundation in Civil Engineering, the development of core courses of the specialization across the full breadth of the field, as well as in-depth and high-level consolidation of knowledge within the specialization. In total, students must complete 300 ECTS credits to obtain the diploma.

The curriculum includes the following categories of courses:

- Core mandatory courses
- Specialization mandatory courses
- Elective mandatory courses
- Elective mandatory courses (non-graded)
- Laboratory courses (non-graded)
- Optional courses

Core mandatory courses are common to all specializations. Optional courses do not count towards the ECTS credits required for the diploma. Finally, students who choose the “Internship” course in the 9th semester are exempt from selecting one course from any of the elective mandatory course groups of the 9th semester.

The weekly curriculum schedule per semester is shown in Table 1.

Table 1: Total weekly hours and corresponding ECTS per semester (in parenthesis).

Semester	Hours (ECTS)			
	Mandatory	**Elective Mandatory**	**Elective Mandatory***	**Laboratory***
1	20 (26)	3 (4)	2 (2)	3 (3)
2	21 (26)	-	2 (2)	3 (3)
3	21 (26)	-	2 (2)	3 (3)
4	19 (25)	3 (3-5)	2 (2)	3 (3)
5	21 (29)	3 (4-5)	-	3 (3)
6	23 (30)	-	-	3 (3)
7	**Department of Structural Engineering**			
	24 (34)	-	-	3 (4)
	Department of Water Resources and Environmental Engineering			
	19 (23)	3 (4) or 4 (5)	-	3 (4)
	Department of Transportation Planning and Engineering			
	23 (29)	3 (4) or 4 (5)	-	3 (4)
	Department of Geotechnical Engineering			
	23 (30)	3 (4) or 4 (5)	-	3 (4)
8	**Department of Structural Engineering**			
	16 (21)	Group 1: 3 (4) or 4 (5), Group 2: 3-4 (4-5)	-	3 (4)
	Department of Water Resources and Environmental Engineering			
	10 (15)	Group 1: 3 (4) or 4 (5), Group 2: 3 (5) or 4 (6), Group 3: 3-4 (4-6)	-	3 (4)
	Department of Transportation Planning and Engineering			
	18 (25)	3-4 (4-5)		3 (4)
	Department of Geotechnical Engineering			
	11 (15)	Group 1: 3(5) or 4(5), Group 2: 3-4 (4,5-5), Group 3: 3(5) or 4(5)		3 (4)
9	**Department of Structural Engineering**			
	15 (23)	Group 1: 3(5) or 4(5), Group 2: 3(5) or 4(5), Internship: 3	-	-
	Department of Water Resources and Environmental Engineering			
	3 (4)	Group 1: 3(6) or 4(6), Group 2: 3(5) or 4(5), Group 3: 3(5) or 4(5), Group 4: 3(5), Group 5: 4(5), Internship: 3	-	-
	Department of Transportation Planning and Engineering			
	15 (20)	Group 1: 3(5) or 4(5), Group 2: 4(5), Internship: 3		
	Department of Geotechnical Engineering			
	12 (15)	Group 1: 3-4 (5-7), Group 2: 3(5) or 4(5), Group 3: 4(5), Internship: 3		
10	30 ECTS			

** Non-graded*

2.2 Undergraduate Courses

The courses per semester, along with the corresponding weekly teaching hours and ECTS credits, are listed below. Courses marked with an asterisk are not graded.

1st SEMESTER

Mandatory		
1058	Mechanics of the rigid body	3 hours/4 ECTS
1245	Mathematical Analysis & Linear Algebra	6 hours /8 ECTS
1039	Ecology and Chemistry for Civil Engineers	3 hours /4 ECTS
1246	General Building Technology – Architectural Drawing	4 hours /5 ECTS
1007	Geology for Engineers	4 hours /5 ECTS
Mandatory Elective Courses (at least one must be selected)		
1217	Computer Aided Design of Civil Engineering Projects	3 hours /4 ECTS
1174	Descriptive Geometry	3 hours /4 ECTS
1247	Life-cycle analysis of civil engineering	3 hours /4 ECTS
Mandatory Elective Courses (at least one must be selected)		
1027	English Language 1	2 hours /2 ECTS
Laboratory		
1248	*Laboratory on Materials	3 hours /3 ECTS

2nd SEMESTER

Mandatory		
1240	Mechanics of Deformable Solids	3 hours /4 ECTS
1057	Multivariable Calculus	3 hours /4 ECTS
1249	Differential Equations	5 hours /6 ECTS
1048	Building materials I	4 hours /5 ECTS
1005	Topics on Architecture & Architectural Synthesis	3 hours /4 ECTS
1229	Physics	3 hours /4 ECTS
Mandatory Elective Courses (at least one must be selected)		
1113	* English Language 2	2 hours/ 2 ECTS
Laboratory		
1248	* Laboratory on Materials	3 hours /3 ECTS

3rd SEMESTER

Mandatory		
1241	Strength of Materials	3 hours /4 ECTS
1228	Dynamics of the rigid body	3 hours /5 ECTS
1001	Numerical Analysis	4 hours /6 ECTS
1178	Environmental Engineering	3 hours /4 ECTS
1243	Computer – based Solution Methods	4 hours /5 ECTS
1189	Geodesy	4 hours /6 ECTS

Mandatory Elective Courses (at least one must be selected)		
1032	*English Language 3	2 hours /2 ECTS
Laboratory		
1264	*Laboratory on Constructions - Geotechnics	3 hours /3 ECTS

4th SEMESTER

Mandatory		
1015	Fluid Mechanics	4 hours /6 ECTS
1045	Structural Analysis of Statically Determinate Structures	4 hours /6 ECTS
1062	Construction Site Organisation and Safety- Construction Equipment	3 hours /4 ECTS
1010	Soil Mechanics I	4 hours /5 ECTS
1132	Probability and Statistics	4 hours /5 ECTS
Mandatory Elective Courses (at least one must be selected)		
1056	Applied Economics	3 hours /4 ECTS
1109	Surveying Engineering Applications	3 hours /4 ECTS
1101	Computer Programming	3 hours /4 ECTS
Mandatory Elective Courses (at least one must be selected)		
1118	*English Language 4	2 hours/ 2 ECTS
Laboratory		
1264	*Laboratory on Constructions - Geotechnics	3 hours /3 ECTS

5th SEMESTER

Mandatory		
1140	Structural Analysis of Indeterminate Structures	4 hours /6 ECTS
1148	Engineering Hydrology	4 hours /5 ECTS
1250	Hydraulics and Hydraulic Works	5 hours /7 ECTS
1037	Geometric Design of Roads	4 hours /5 ECTS
1094	Soil Mechanics II	4 hours /5 ECTS
Mandatory Elective Courses (at least one must be selected)		
1186	Introduction to Energy engineering	3 hours /4 ECTS
1265	Optimization and Machine Learning	3 hours /4 ECTS
Laboratory		
1271	*Laboratory on Water Resources and Environment	3 hours /3 ECTS

6th SEMSTER

Mandatory		
1076	Reinforced Concrete I	4 hours /6 ECTS
1077	Matrix Structural Analysis – 1D Finite Elements	4 hours /6 ECTS
1066	Foundations	4 hours /5 ECTS
1075	Steel Structures I	5 hours /6 ECTS
1123	Road Construction	3 hours /4 ECTS

1112	Transportation Systems Planning	3 hours /4 ECTS
Laboratory		
1271	*Laboratory on Water Resources and Environment	3 hours /3 ECTS

7th SEMESTER

Department of Structural Engineering

Mandatory		
1251	Earthquake Engineering I	4 hours /5 ECTS
1107	Maritime Hydraulics and Harbour Engineering	4 hours /5 ECTS
1183	Construction Management	3 hours /4 ECTS
1235	Reinforced Concrete II	4 hours /5 ECTS
1141	Dynamic of Structure	4 hours /5 ECTS
1138	Steel Structures II	4 hours /5 ECTS
1195	Finite Element Analysis of Structures	3 hours /5 ECTS
Laboratory		
1272	*Laboratory on Humanities	3 hours /4 ECTS

Department of Water Resources and Environmental Engineering

Mandatory		
1251	Earthquake Engineering I	4 hours /5 ECTS
1107	Maritime Hydraulics and Harbour Engineering	4 hours /5 ECTS
1183	Construction Management	3 hours /4 ECTS
1235	Reinforced Concrete II	4 hours /5 ECTS
1073	Open Channel and River Hydraulics	4 hours /4 ECTS
Mandatory Elective Courses (at least one must be selected)		
1138	Steel Structures II	4 ώρες/5 ECTS
1143	Engineering Geology	3 ώρες/5 ECTS
Laboratory		
1272	*Laboratory on Humanities	3 hours /3 ECTS

Department of Transportation Planning and Engineering

Mandatory		
1251	Earthquake Engineering I	4 hours /5 ECTS
1107	Maritime Hydraulics and Harbour Engineering	4 hours /5 ECTS
1183	Construction Management	3 hours /4 ECTS
1235	Reinforced Concrete II	4 hours /5 ECTS
1017	Traffic Flow	4 hours /5 ECTS
1124	Design of Road and Airfield Pavements	4 hours /5 ECTS
Mandatory Elective Courses (at least one must be selected)		
1138	Steel Structures II	4 hours /5 ECTS
1143	Engineering Geology	3 hours /4 ECTS

Laboratory		
1272	*Laboratory on Humanities	3 hours /4 ECTS

Department of Geotechnical Engineering

Mandatory		
1251	Earthquake Engineering I	4 hours /5 ECTS
1107	Maritime Hydraulics and Harbour Engineering	4 hours /5 ECTS
1183	Construction Management	3 hours /5 ECTS
1235	Reinforced Concrete II	4 hours /5 ECTS
1201	Experimental Soil Mechanics	4 hours /5 ECTS
1141	Dynamic of Structure	4 hours /5 ECTS
Mandatory Elective Courses (at least one must be selected)		
1138	Steel Structures II	4 hours /5 ECTS
1143	Engineering Geology	3 hours /4 ECTS
Laboratory		
1272	*Laboratory on Humanities	3 hours /4 ECTS

8th SEMESTER

Department of Structural Engineering

Mandatory		
1086	Reinforced Concrete III	4 hours /5 ECTS
1074	Bridge Design I	4 hours /6 ECTS
1180	Steel-Concrete Composite Structures	4 hours /5 ECTS
1142	Nonlinear Structural Analysis	4 hours /5 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1253	Quality Control and Quality Assurance	3 hours /4 ECTS
1254	Geographic Information Systems	3 hours /4 ECTS
1197	Renewable Energy and Hydroelectric Projects	3 hours /4 ECTS
1255	Engineering Materials II	3 hours /4 ECTS
1067	Rock Mechanics - Tunnels	4 hours /5 ECTS
1262	Complex Calculus	3 ώρες /4 ECTS
1093	Engineering Law	3 hours /5 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1256	Structural Reliability and Risk Analysis	3 hours /5 ECTS
1070	Timber Structures	4 hours /5 ECTS
1068	Light Metal Structures	4 hours /5 ECTS
1145	Engineering Seismology	4 hours /5 ECTS
1139	Steel Structures III	3 hours /5 ECTS
Laboratory		
1272	*Laboratory on Humanities	3 hours /4 ECTS

Department of Water Resources and Environmental Engineering

Mandatory		
1042	Groundwater	3 hours /5 ECTS
1013	Coastal Engineering	3 hours /5 ECTS
1150	Sanitary Engineering	4 hours /5 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1253	Quality Control and Quality Assurance	3 hours /4 ECTS
1254	Geographical Information Systems	3 hours /4 ECTS
1197	Renewable Energy and Hydroelectric Projects	3 hours /4 ECTS
1255	Building Materials II	3 hours /4 ECTS
1067	Rock Mechanics-Tunnels	4 hours /5 ECTS
1262	Complex Calculus	3 hours /4 ECTS
1093	Engineering Law	3 hours /4 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1257	Flood Risk Management	4 hours /5 ECTS
1074	Bridge Design I	4 hours /6 ECTS
1084	Advanced Geotechnical Works	3 hours /5 ECTS
Mandatory Elective Courses – Group 3 (at least one must be selected)		
1049	Hydraulic Structures & Dams	3 hours /5 ECTS
1002	Irrigation Engineering	3 hours /5 ECTS
Laboratory		
1272	*Laboratory on Humanities	3 hours /4 ECTS

Department of Transportation Planning and Engineering

Mandatory		
1087	Urban Road Networks	4 hours /6 ECTS
1137	Railway Engineering	4 hours /6 ECTS
1231	Pavement Evaluation and Maintainance	3 hours /4.5 ECTS
1038	Special Topics of Road Geometric Design	4 hours /5 ECTS
1025	Public Transit Planning	3 hours /4.5 CTS
Κατ' Εκλογον Υποχρεωτικά (υποχρεωτικοr η επιλογοr ενός)		
1253	Quality Control and Quality Assurance	3 hours /4 ECTS
1254	Geographical Information Systems	3 hours /4 ECTS
1197	Renewable Energy and Hydroelectric Projects	3 hours /4 ECTS
1255	Engineering Materials II	3 hours /4 ECTS
1067	Rock Mechanics - Tunnels	4 hours /5 ECTS
1262	Complex Calculus	3 hours /4 ECTS
1093	Engineering Law	3 hours /5 ECTS
Laboratory		

1272	*Laboratory on Humanities	3 hours /4 ECTS

Department of Geotechnical Engineering

Mandatory		
1084	Advanced Geotechnical Works	3 hours /5 ECTS
1223	Computational Geotechnics	4 hours /6 ECTS
1067	Rock Mechanics - Tunnels	4 hours /4 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1042	Groundwater	3 hours /5 ECTS
1256	Structural Reliability and Risk Analysis	3 hours /5 ECTS
1145	Engineering Seismology	4 hours /5 ECTS
1068	Light Metal Structures	4 hours /5 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1231	Pavement Evaluation and Maintainance	3 hours /4.5 ECTS
1013	Coastal Engineering	3 hours /5 ECTS
1142	Nonlinear Structural Analysis	4 hours /5 ECTS
Mandatory Elective Courses – Group 3 (at least one must be selected)		
1180	Steel-Concrete Composite Structures	4 hours /5 ECTS
1150	Sanitary Engineering	4 hours /5 ECTS
1093	Engineering Law	3 hours /5 ECTS
1086	Reinforced Concrete III	4 hours /5 ECTS
Laboratory		
1272	*Laboratory on Humanities	3 hours /4 ECTS

Optional (all directions)		
1220	Environment and Development	3 hours

Note: The optional course is not taken into account in the calculation of credit units.

9th SEMESTER

Department of Structural Engineering

Mandatory		
1267	Integrated Project in Structural Engineering	3 hours /6 ECTS
1232	Prestressed Concrete	4 hours /5 ECTS
1092	Bridge Design II	4 hours /5 ECTS
1061	Seismic Design II	4 hours /7 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1216	Mechanics of Masonry	3 hours /5 ECTS
1258	Seismic Retrofit and Strenghtening of Existing Structures	3 hours /5 ECTS
1259	Plates & Shells – Special Issues in Finite Element Analysis	4 hours /5 ECTS

1046	Stochastic Methods	3 hours /5 ECTS
1063	Soil Dynamics	4 hours /5 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1222	Soil-Structure Interaction	4 hours /5 ECTS
1064	Nonlinear Behavior of Steel Structures	3 hours /5 ECTS
1099	Advanced Topics in Reinforced Concrete	3 hours /5 ECTS
1230	Environmental Impacts	3 hours /5 ECTS
1260	Technology of Building Information Modelling (BIM)	3 hours /5 ECTS
Internship		
1242	*Internship	3 hours /3 ECTS

Department of Water Resources and Environmental Engineering

Mandatory		
1043	Water Resources Management	3 hours /5 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1268	Integrated Project in Hydraulic Engineering	3 hours /6 ECTS
1136	Experimental Hydraulics	4 hours /6 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1216	Mechanics of Masonry	3 hours /5 ECTS
1258	Seismic Retrofit and Strenghtening of Existing Structures	3 hours /5 ECTS
1259	Plates & Shells – Special Issues in Finite Element Analysis	4 hours /5 ECTS
1046	Stochastic Methods	3 hours /5 ECTS
1063	Soil Dynamics	4 hours /5 ECTS
1182	Advanced Topics in Port Engineering	3 hours /5 ECTS
Mandatory Elective Courses – Group 3 (at least one must be selected)		
1222	Soil–Structure Interaction	4 hours /5 ECTS
1064	Nonlinear Behavior of Steel Structures	3 hours /5 ECTS
1099	Advanced Topics in Reinforced Concrete	3 hours /5 ECTS
1230	Environmental Impacts	3 hours /5 ECTS
1260	Technology of Building Information Modelling (BIM)	3 hours /5 ECTS
Mandatory Elective Courses – Group 4 (at least one must be selected)		
1014	Off-shore Structures	3 hours /5 ECTS
1261	Ecological Models for Surface Water	3 hours / 5 ECTS
Mandatory Elective Courses – Group 5 (at least one must be selected)		
1051	Wastewater Treatment and Disposal Plants	4 hours /5 ECTS
Internship		
1242	*Internship	3 hours /3 ECTS

Department of Transportation Planning and Engineering

Mandatory

1011	Traffic Management and Road Safety	4 hours /5 ECTS
1003	Airport Planning and Management	4 hours /5 ECTS
1044	Freight Transport	4 hours /6 ECTS
1269	Integrated Project in Transportation Engineering	3 hours /6 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1222	Soil-Structure Interaction	4 hours /5 ECTS
1064	Nonlinear Behavior of Steel Structures	3 hours /5 ECTS
1099	Advanced Topics in Reinforced Concrete	3 hours /5 ECTS
1230	Environmental Impacts	3 hours /5 ECTS
1260	Technology of Building Information Modelling (BIM)	3 hours /5 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1166	Analysis Methods in Traffic Engineering	4 hours /5 ECTS
1167	Advanced Topics on Pavements	4 hours /5 ECTS
1169	Quantitative Methods in Transportation	4 hours /5 ECTS
Internship		
1242	*Internship	3 hours /3 ECTS

Department of Geotechnical Engineering

Mandatory		
1104	Specialised Topics on Foundation Engineering	4 hours /5 ECTS
1222	Soil-Structure Interaction	4 hours /5 ECTS
1063	Soil Dynamics	4 hours /5 ECTS
Mandatory Elective Courses – Group 1 (at least one must be selected)		
1270	Integrated Project in Geotechnical Engineering	3 hours /6 ECTS
1061	Seismic Design II	4 hours /6 ECTS
1044	Freight Transport	4 hours /6 ECTS
1195	Finite Element Analysis of Structures	3 hours /5 ECTS
Mandatory Elective Courses – Group 2 (at least one must be selected)		
1092	Bridge Design II	4 hours /5 ECTS
1014	Off-shore Structures	3 hours /5 ECTS
Mandatory Elective Courses – Group 3 (at least one must be selected)		
1232	Prestressed Concrete	4 hours /5 ECTS
1167	Advanced Topics on Pavements	4 hours /5 ECTS
Internship		
1242	*Internship	3 hours / 3 ECTS

NOTE: Students who choose the “Internship” course are exempt from selecting one course from any of the elective mandatory course groups of the 9th semester.

10th SEMESTER

Completion of Diploma Thesis

2.3 Diploma Thesis

The Diploma Thesis (DT) is an extensive work - analytical, synthetic, or applied - carried out by undergraduate students at the end of their studies to obtain the title of Graduate Engineer of the National Technical University of Athens (NTUA). On July 5, 1991, the University Senate decided to establish general guidelines for the preparation of Diploma Theses for all NTUA students. The details are determined by the individual Schools. The significant nature of the DT is also evident from its comparison with the German Diplomarbeit, the French Thèse de diplôme, and the Anglo-Saxon Master of Science or Master of Engineering thesis, with which it is essentially equivalent.

The entire tenth semester is dedicated to the diploma thesis, during which the student does not attend other courses. A student's formal application for the assignment of a diploma thesis topic can be submitted at the end of the 8th semester, but typically the work begins at the end of the 9th semester.

During the preparation of their Diploma Thesis, the student is guided to apply the knowledge gained from their studies to facilitate a smoother assimilation process. They are also trained in the search for literature and other information sources that serve as the foundation for research, and in applying the scientific methodology within the context of a research process.

It is imperative to acknowledge that, in all circumstances, the Diploma Thesis is undertaken under the student's sole responsibility and is intended to promote the development of sound, independent initiatives. Consequently, the mere application of the supervisor's instructions without a critical examination or analysis by the student should be strictly prohibited.

Depending on its primary subject, the Diploma Thesis can be categorised as follows:

- Independent Literature Synthesis: This type of Thesis involves the comprehensive documentation, description, and well-founded critique of literature on a specific subject. It distinguishes itself from mere translations.
- Study of Large Engineering Projects: This type of Thesis focuses on analysing a substantial engineering project at the preliminary design and/or implementation stage. It may include numerical investigations, research contributions, or personal theoretical contributions. The research process should adhere to a complete evidentiary process based on recognised or taught scientific methods.
- Partially Research-Based Topics: This type of Thesis combines research elements with practical applications. It may involve analysing experimental results, presenting critical insights, making personal theoretical contributions, conducting experiments, or developing novel computer programs.

The preferred commencement date for the Diploma Thesis within a selected scientific area is generally considered to be the commencement of the ninth semester. This timing allows for the timely addressing of potential time-consuming tasks, such as obtaining additional literature from abroad, preparing experimental setups, visiting construction sites or factories, and so on.

The maximum number of courses required to be completed before undertaking a Diploma Thesis is 10 courses.

The commencement of the Diploma Thesis typically occurs, both practically and formally, following the submission of the pertinent application to the School's Secretariat and the assignment of the thesis topic.

The topic assignment should ideally originate from a proposal submitted by the interested student, accompanied by a discussion with the Thesis Supervisor. Once the topic is finalised, the Supervisor informs the Head of the Department in writing.

Each student is responsible for completing and submitting their individual Diploma Thesis. Group theses are permitted for a maximum of two students per group, only in instances where the subject matter and content of the thesis necessitate it. For instance, when, in addition to theoretical work, laboratory work involving a substantial number of measurements that require time is required, or when extensive use of a computer is indispensable. In all cases, the student must independently develop their own initiative.

It is strongly recommended that the student commence searching for and analysing the relevant literature as early as possible. Sources of literature may include lecture notes, textbooks from courses related to the thesis topic, and scientific articles accessible in libraries.

Throughout the execution of the thesis, the Supervisor appointed by the Department assumes responsibility for monitoring the progress of the work. One month prior to the anticipated submission date of the thesis, the Supervisor informs the Head of the Department in writing.

Throughout the entire process, the Supervisor monitors the student, simultaneously encouraging and assessing their scientific initiative. The final scope of the thesis is contingent upon the intermediate developments of the work, while the completion time is determined by the response to the requirements imposed by the topic. Reluctance or inability of the Supervisor to effectively oversee the thesis constitutes a significant academic offence.

3. Operation

3.1 General

Under the implemented Curriculum, the educational process at NTUA is primarily concentrated between 08:45 and 15:30 from Monday to Friday, providing both students and instructors with sufficient time for active engagement with the abundant sources of knowledge available today.

Courses take place at the Zografou Campus. To facilitate both instructors and students, selected locations within the building housing the classrooms display signs with the weekly course schedule and the names of the instructors.

The School's Secretariat is located in the Administration Building (Kitsikis Building) at the Zografou Campus and is open to the public (students and other citizens) on Monday, Wednesday, and Friday from 11:00 to 13:30. Phone numbers for the Secretariat as well as for the instructors can be found on the School's and NTUA's websites.

3.2 Useful Information

All information regarding the School of Civil Engineering at NTUA is available on its website, which is continuously updated and enriched. Students are strongly encouraged to visit it very regularly. Questions can be addressed to the School's Secretariat (admin@civil.ntua.gr) or to the Student Affairs Committee (est@civil.ntua.gr).

1. Enrollment in the School for the first semester is carried out as follows:

Each first-year student must complete two registrations:

A. A pre-registration with the Ministry of Education (see relevant Ministry announcement) and
B. A registration by submitting the required documents to the School of Civil Engineering at NTUA, on dates determined by the School.

2. By registering at the School, the mandatory courses of the 1st semester are automatically declared, except for elective courses, which must be declared on the form included in the announcement.
3. You will receive credentials from the IT Center at the email address you have provided. Each student has their own code (011XXYYY or cvXXYYY, where XX is the year of admission and YYY is the order of admission to the School), which is issued by the Secretariat after registration. This code must be memorized as it will be the key to access most electronic (and other) services of NTUA and serves as the username for the electronic services throughout your studies (student email, course registration beyond the 1st semester, etc.). With these credentials, you can access:
    - Student ID issuance
    - Textbook registration
    - Course information and communication with instructors
    - Password recovery (in case of loss)

4. Each semester (from the 2nd semester onwards), you are required to complete electronically, on dates announced on the School's website:
- Course registration for the semester (and pending courses, with a maximum of 10 courses per semester in higher semesters)
- Textbook registration for the courses of the semester

5. In higher semesters, additional actions are required:
    - in the 7th semester: selection of specialization (an informative session is held during the 6th semester)
    - in the 9th semester: assignment of the Diploma Thesis (DT), provided that no more than 10 courses are pending for the degree
6. Interruption of studies: Students who have not exceeded the maximum duration of studies as defined by relevant legislation may, at the beginning of each semester, request a suspension of studies for up to 4 semesters by submitting an application to the School Secretariat. During this period, student status is temporarily suspended.
7. Issuance of certificates: a) by application to the School Secretariat via email (voutou@civil.ntua.gr or dorab@civil.ntua.gr).
8. Use of Student Residences: A registration certificate is issued by the School, along with further information.
9. Course examinations: The right to participate applies only to courses declared during semester registration.
10. Learning difficulties: According to current legislation, students with learning difficulties submit an application to the School Secretariat, accompanied by a report from a certified authority. The application is reviewed by the School Deanery, and upon approval, a certificate is issued to the student for use as needed.
11. Diploma Thesis examination: To take the DT exam, which is held according to the dates in the Academic Calendar (3 times a year), the student must have no pending courses.
12. Improvement of course grades: This can be requested through the student platform (following a relevant announcement from the Secretariat) for courses in which the student has received a passing grade in the regular examination within the same year. The exam takes place during the September resit period.
13. Course exemptions:
    13α. Applications are submitted electronically to the email aitiseisapallagon@civil.ntua.gr, accompanied by the detailed transcript and syllabus of the course studied at the originating institution, following the relevant announcement on the School website (posted after the end of course registration, twice a year: winter and spring semester).
    13β. For foreign languages, instruction is provided in the 1st–4th semesters, and the exam is held only in the 3rd and 4th semesters. Students holding a diploma qualifying them for exemption may submit an application with the relevant certificate after the announcement on the School website (posted twice a year: winter and spring semester).

Note: Exemption applies to instruction and examination of the 1st–3rd semesters, but students must be examined in the 4th-semester terminology.

14. Use of library services and materials: By presenting the student ID.
15. Catering options: A certificate is issued by the Secretariat, with information and documents for the meal card at the Student Welfare Department (Thomaideio Publishing Building). Free meals are provided at the NTUA restaurant (Zografou Campus) for students whose family income is below a certain threshold. Other students can also access the restaurant with a small fee.
16. Participation in student exchange programs (ERASMUS): Information is available at the Erasmus Office (Administration Building, Zografou Campus) or at the School level from the responsible staff: Ms. Ch. Andritsou (email: chandr@central.ntua.gr) and S. Zgampi (email: sofia@hydro.ntua.gr
17. Participation in activities: By presenting the student ID. Information is available at the Music Department and the Physical Education Department.
18. Electronic services – Useful links – Information:
    - Course information and communication with instructors
    - Textbook registration
    - Information about: Library, Restaurants – Cafeterias, Gym, Medical Office (first aid and medical advice, contact: 210-7721566, 1568), Psychological Support (contact: 210-7722590, 9:00–15:00)

- Access to the Zografou Campus: The School is accessible via public transport, with the following alternatives:

– Bus line 242 “St. Katechaki – NTUA Campus.” The most popular route is from Katechaki metro station to NTUA Campus, alighting at “Kt. Agronomists – Surveyors.”
– Bus line 608 “Galatsi – Academy – Zografou Cemetery.” Alight at “8th Zografou” and enter the Polytechnic via the Zografou gate.
– Bus line 230 “Acropolis – Zografou.” Alight at “8th Zografou” and enter the Polytechnic via the Zografou gate.

SCHOOL OF CIVIL ENGINEERING NTUA
web site http://www.civil.ntua.gr
E-mail: admin@civil.ntua.gr
Linkedin: @School of Civil Engineering, NTUA

National Technical University of Athens

School of Civil Engineering