**Master’s Degree Requirements for Graduate Students in the Department of Civil and Construction Engineering, National Taiwan University of Science and Technology**

25th amendment in the Department Affairs Meeting on December 22, 2009

26th amendment in the Department Affairs Meeting on February 23, 2010

27th amendment in the Department Affairs Meeting on December 14, 2010

28th amendment in the Department Affairs Meeting on October 18, 2016

29th amendment in the Department Affairs Meeting on March 06, 2018

30th amendment in the Department Affairs Meeting on May 15, 2018

31st amendment in the Department Affairs Meeting on May 14, 2019

32nd amendment in the Department Affairs Meeting on May 12, 2020

33rd amendment in the Department Affairs Meeting on November 10, 2020

34th amendment in the Department Affairs Meeting on September 20, 2022

35th amendment in the Department Affairs Meeting on November 22, 2022

1. Master students are expected to complete their studies in one to four years.
2. Students studying in the master's program at the Department of Civil and Construction Engineering, National Taiwan University of Science and Technology (NTUST) must complete a minimum of 24 credits, excluding their master’s thesis.
3. Students studying in the in-service master’s program must complete a minimum of 30 credits, excluding their master’s thesis, and their graduation thesis should be practice-based research.
4. At the initial stage of composing a thesis, students must confirm with their advisor that the subject and content of the thesis match the professional fields of the department. When writing the thesis, students may not violate academic research ethics such as engaging in plagiarism, falsification, fabrication, and fraud; having their thesis written by others; and infringing on the intellectual property rights of others.
5. Students studying in the master’s program (excluding foreign students and students in the in-service master’s program) must take seminar courses, and mainland chinese students and

Overseas Chinese students need to take seminar courses.

1. Master’s students (including mainland Chinese students and overseas Chinese students but excluding foreign students enrolled in a program taught in English) must complete 4 credits of English courses (these credits are not included in the minimum required credits). Students may take English courses offered by the NTUST Language Center that are open to Master’s students (i.e., those with the course code “FE”) or English courses offered by the Department of Applied Foreign Languages (i.e., those with the course code “FL”). Students who have passed the intermediate-level of the General English Proficiency Test (GEPT) (or its equivalent) before or after admission can submit the relevant certification for credit exemption when applying for the degree examination.
2. To ensure that students have good research ethics and are compliant with academic norms, all students studying in the graduate or Ph.D. programs must complete, by the end of their first academic year, the academic ethics course, based on the NTUST Regulation of Academic Research Ethics Course. Those who have completed the course may apply for the degree examination.
3. The graduate courses and continuing education credit courses that are completed before admission, respectively, by students in the master’s program and the in-service master’s program can be waived in accordance with the NTUST credit exemption regulations.
4. NTUST students are allowed to select cross-campus courses in the College of Engineering, National Taiwan University under the permission of their advisors (no more than 3 credits per semester).
5. The courses in the master’s program are divided into five divisions: (a) construction management, (b) geotechnical engineering, (c) structural engineering, (d) construction material, and (e) information technology. Students studying in the master’s program must complete at least 15 credits of the core courses from their chosen division (details in Annex 1). Due to their research purposes that results in noncompliance with requirements mentioned above, they must have their advisor sign the relevant form and submit it to the Teaching Committee for review one semester before the date of the oral examination.
6. Graduate students should select full-time (or joint appointment) faculty (assistant professor or above) in this department to be their thesis advisors within 4 weeks after the beginning of their first semester and submit the "Agreement letter of thesis advisor" to department office.

If students require co-advisors from outside (assistant professors and above, or experts) for special reasons, the students need to submit all the related certificates of the co-advisors, and attach with agreement letter of the co-advisor to the department office. Agreement letter of the co-advisor should be submitted to the teaching committee meeting for approval at least six months before graduation oral exam.

1. When students studying in the master’s program begin their second semester, their advisors are allowed to request them to serve as teaching assistants for 1 year (2 semesters) depending on the teaching and research requirements.
2. Master’s students should complete thesis originality checks before the degree examination, and the similarity percentage should not exceed 30%. In addition, students must log in to the student information system to print and fill out the thesis originality statement. The students should submit the thesis originality report to their advisor and degree examination committee on the day of their degree examination.
3. Master’s students who have a) studied for more than one semester, b) fulfilled the graduation requirements of their department, and c) completed the first draft of their thesis may apply for the master’s degree thesis defense examination, which must be taken in accordance with the “National Taiwan University of Science and Technology Master’s and Doctoral Degree Thesis Defense Examination Regulations.”
4. Matters that are not specified in this document shall be managed according to relevant regulations proposed by NTUST and the Ministry of Education.
5. The degree requirements and amended regulations are being implemented after being approved in the department affairs meeting.

**Annex 1**

**Core Courses for Each Division**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| A.Construction Management | | C.Structural Engineering | | | |
| CT5304 | Construction Project Risk Management | CT5201 | | | Advanced Structural Theory |
| CT5306 | Engineering Investment and Decision Making | CT5202 | | | Finite Element Method |
| CT5307 | Construction Management | CT5203 | | | Behavior of Reinforced Concrete Members |
| CT9901 | Cloud-based Construction Management and Decision Support System | CT5207 | | Structural Dynamics | |
| CT5403 | Quality Control in Construction Engineering | CT5301 | | | Numerical Methods in Structural Engineering |
| CT5404 | Construction Project Control | CT5302 | | Theory of Elasticity | |
| CT5310 | Performance Assessment and Project Management | CT6003 | | | Reliability Analysis of Structures |
| CT5409 | Special Topics on Engineering Financial Management | CT6004 | | | Nonlinear Structural Behavior |
| CT5701 | Construction MIS and DSS Systems | CT6005 | | | Earthquake-Resistant Design |
| CT5702 | Quantitative Methods in Construction Management | CT6007 | | | Structural Control |
| CT5703 | Construction Industry Process Re-engineering | CT6301 | | | Behavior of Steel Members |
| CT5704 | Construction Automation and E-business | CT6302 | | | Random Vibrations |
| CT5809 | Application of Computational Intelligence in Engineering | CT6303 | | | Advanced Behavior and Design of Steel Structure |
| CT5813 | Artificial Intelligence for Project Management | CT6305 | | | Seismic Isolation and Energy Dissipation Design of Structures |
| CT5815 | Cost Management | CT6503 | | | Advanced Finite Element Method |
| CT5808 | Computer-aided Decision Simulation and Analysis | D.Construction Material | | | |  |
| CT9801 | Contract Management and Disputes Resolution | CT5101 | | | Behavior of Engineering Materials |
| B. Geotechnical Engineering | | CT5105 | | | Advanced Concrete Technology |  |
| CT5500 | Advanced Soil Mechanics | CT5107 | | | Hardened Concrete |
| CT5503 | Earth Structures | CT5202 | | | Finite Element Method |
| CT5505 | Soil Dynamics | CT5811 | | | The Green and Durability Design of Pozzolanic Concrete |
| CT5507 | Deep Foundation Engineering | CT5812 | Physical and Chemical Analysis on Materials | | |
| CT5508 | Dynamic Foundation Design | CT5816 | | | Deterioration of Engineering Materials |
| CT5509 | Case Study in Geotechnical Engineering | CT5817 | | | Design and Construction of Building Integrated Photovoltaic |
| CT5601 | Site Investigation | CT6108 | | | Constitutive Law for Engineering Materials |
| CT5603 | Special Topics on Soil Improvement | CT6109 | | | Mechanics of Composite Materials |
| CT5604 | Rock Mechanics | CT6200 | | | Micro Mechanism and Macro-Properties of Steels |
| CT5608 | Advanced Foundation Engineering | CT6201 | | | Principles & Practice of High-Performance Concrete |
| CT5609 | Advanced Rock Tunneling | CT6203 | | | Theory of Plasticity |
| CT5802 | Landslides and Remedial Measures | CT6205 | | | Fracture Mechanics |
| CT5806 | Design and Construction of Reinforced Earth Structure | CT5907 | | | Pavement Engineering |
| CT6101 | Theoretical Soil Mechanics | CT5007 | | | Intelligent Urban Water Management |
| CT6103 | Soil Behavior | CT5607 | | | Special Topic of Geotextile |
| CT6104 | Deep Excavation |  | | | |
| CT6203 | Theory of Plasticity |  | | | |
| CT6501 | Numerical Methods in Geotechnical Engineering |  | | |  |
| CT5607 | Special Topic of Geotextile |  | | |  |
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| E.Information Technology | |  | | |  |
| CT5003 | Human-Computer Interaction |  | | |  |
| CT5009 | Intelligent Image Processing and 3D Mapping |  | | |  |
| CT5705 | Database and Information Technologies |  | | |  |
| CT5706 | Computer Graphics and Visualization |  | | |  |
| CT5707 | Object-Oriented Programming Design and Analysis |  | | |  |
| CT5708 | Parallel and Distributed Computing |  | | |  |
| CT5805 | Software Engineering in Construction Information Systems |  | | |  |
| CT5808 | Computer-aided Decision Simulation and Analysis |  | | |  |
| CT6306 | Application Programming Interface Add-in Development for Building Information Modeling |  | | |  |
| CT5809 | Application of Computational Intelligence in Engineering |  | | |  |