

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
36th amendment in the Department Affairs Meeting on March 31, 2026

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.
6. 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.
7. 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.

8. 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.
9. 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 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.
10. NTUST students may take courses at National Taiwan University and National Taiwan Normal University with the approval of their advisor. Courses taken at these universities may not be recognized as core courses of the department.
11. 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.
12. 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.
13. 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.
14. 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."
15. Matters that are not specified in this document shall be managed according to relevant regulations proposed by NTUST and the Ministry of Education.
16. 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

CT5304	Construction Project Risk Management
CT5306	Engineering Investment and Decision Making
CT5307	Construction Management
CT9901	Cloud-based Construction Management and Decision Support System
CT5403	Quality Control in Construction Engineering
CT5404	Construction Project Control
CT5310	Performance Assessment and Project Management
CT5409	Special Topics on Engineering Financial Management
CT5701	Construction MIS and DSS Systems
CT5703	Construction Industry Process Re-engineering
CT5809	Application of Computational Intelligence in Engineering
CT5813	Artificial Intelligence for Project Management
CT5815	Cost Management
CT5808	Computer-aided Decision Simulation and Analysis
CT9801	Contract Management and Disputes Resolution
CT5013	Principles and Applications of Environmental Economics
CT5305	Computer Applications in Construction Management
CT5015	Construction Procurement and Contract Management

B. Geotechnical Engineering

CT5500	Advanced Soil Mechanics
CT5503	Earth Structures
CT5505	Soil Dynamics
CT5507	Deep Foundation Engineering
CT5508	Dynamic Foundation Design
CT5509	Case Study in Geotechnical Engineering
CT5601	Site Investigation
CT5603	Special Topics on Soil Improvement
CT5604	Rock Mechanics
CT5610	Advanced Rock Mechanics
CT5608	Advanced Foundation Engineering
CT5609	Advanced Rock Tunneling
CT5802	Landslides and Remedial Measures
CT5806	Design and Construction of Reinforced Earth Structure
CT6101	Theoretical Soil Mechanics
CT6103	Soil Behavior
CT6104	Deep Excavation
CT6203	Theory of Plasticity
CT6501	Numerical Methods in Geotechnical Engineering
CT5607	Special Topic of Geotextile

C. Structural Engineering

CT5201	Advanced Structural Theory
CT5202	Finite Element Method
CT5203	Behavior of Reinforced Concrete Members
CT5207	Structural Dynamics
CT5301	Numerical Methods in Structural Engineering
CT5302	Theory of Elasticity
CT6003	Reliability Analysis of Structures
CT6004	Nonlinear Structural Behavior
CT6005	Earthquake-Resistant Design
CT6007	Structural Control
CT6301	Behavior of Steel Members
CT6302	Random Vibrations
CT6303	Advanced Behavior and Design of Steel Structure
CT6305	Seismic Isolation and Energy Dissipation Design of Structures
CT6503	Advanced Finite Element Method

D. Construction Material

CT5101	Behavior of Engineering Materials
CT5105	Advanced Concrete Technology
CT5107	Hardened Concrete
CT5812	Physical and Chemical Analysis on Materials
CT5816	Deterioration of Engineering Materials
CT5817	Design and Construction of Building Integrated Photovoltaic
CT6108	Constitutive Law for Engineering Materials
CT6109	Mechanics of Composite Materials
CT6200	Micro Mechanism and Macro-Properties of Steels
CT6203	Theory of Plasticity
CT5907	Pavement Engineering
CT5007	Intelligent Urban Water Management
CT5607	Special Topic of Geotextile

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
CT6306	Application Programming Interface Add-in Development for Building Information Modeling
CT5800	Applications of Artificial Intelligence in Construction Engineering