NEAR EAST UNIVERSITY

FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

MSc. (MASTER WITH THESIS) PROGRAM

in

CIVIL ENGINEERING

COURSE CATALOGUE

2021-22 FALL

➢ MISSION AND VISION

To support and lead the nation's requirements and technological developments, to be able to conduct international projects and to have authority in research areas. To perform research studies and to educate engineers equipped with technical "know-how", creative thinking and being able to try and research new technologies to achieve the required goal. The vision of the department is to have respect and authority in engineering activities and to gain acceptance through research projects, support to the nation and delivering high-quality engineers.

➢ AIM

The aim of the MSc. in Civil Engineering program with academicians who can conduct scientific and technological research and development activities on a universal scale in Civil Engineering is to educate researchers and innovative graduates who will be capable of using existing and emerging technologies to take an effective part in overcoming complex problems in development processes of modern analysis, design methodologies, and services.

➢ QUALIFICATION AWARDED

The students who successfully complete the program are awarded the degree of Master of Science in Civil Engineering.

➢ LEVEL OF QUALIFICATION

This is a Second Cycle (Master's Degree) program

➢ SPECIFIC ADMISSION REQUIREMENTS

In the framework of the regulations set by the Higher Education Council of Turkey (YÖK) and the Higher Education Planning, Evaluation, Accreditation and Coordination Council (YÖDAK), student admission for this master program is made.

The students are accepted to this master program according to their undergraduate diploma score.

Exchange student admission is made according to the requirements determined by bilateral agreements signed by NEU and the partner university.

Visiting students can enrol for the courses offered in this program upon the confirmation of the related academic unit. Additionally, they need to prove their English language level since the medium of instruction of the program is English.

➢ QUALIFICATION REQUIREMENTS AND REGULATIONS

The Master program consists of a total of 21 credits, provided not less than a minimum of seven courses, a Seminar course and a Thesis. Master study program consists of compulsory and Technical Elective courses.

The students studying in this master program are required to have a Cumulative Grade Points Average (Cum. GPA) of not less than 3.00/4.00 and have completed all the courses, seminar and thesis with at least a letter grade of CC/S in the program in order to graduate. The minimum number of ECTS credits required for graduation is 120. It is also mandatory for the students to complete their compulsory seminar and thesis in a specified duration and quality.

Midterm exams and the final exam, as well as reports on lessons, assignments, quizzes, seminar presentations and learning activities such as student's semester project work within it can be used in the performance evaluation. The students can be successful in this notice for courses if they get at least 70 out of 100 with a cumulative grade point average "Cum. GPA" of at least 3.00 out of 4.00. Seminar course

and thesis according to local credit and non-credit systems are evaluated as either successful or unsuccessful.

Master Thesis will be prepared according to the rules of the Graduate School's Thesis and dissertation writing and has to be presented orally in front of the jury. The thesis is examined after completion of the jury of the thesis. The jury decision can be accepted, rejected, or minor correction. The corrected Thesis is needed to be defended within three months in front of the same jury again. The program of instruction is in English.

➢ RECOGNITION OF PRIOR LEARNING

At Near East University, full-time students can be exempted from some courses within the framework of the related bylaws. If the content of the course previously taken in another institution is equivalent to the course offered at NEU, then the student can be exempted from this course with the approval of the related faculty/graduate school after the evaluation of the course content.

➢ PROFILE OF THE PROGRAM

The program's goal is to equip its graduates with both the fundamental scientific principles that underpin the key analysis and design technics of structures/infrastructures in use today and the engineering skills that enable those principles to be applied in practice. Upon graduation, students should be equipped to pursue a career as Civil Engineer professionals or, if they so wish, to pursue further academic studies. The graduates will be professionals who can be flexible and integrate in a relatively short time into a wide range of different sectors of the industry.

➢ PROGRAM OUTCOMES

	Program Outcomes
1	Ability to use advanced level of fundamental science knowledge as an effective tool for the analysis and/or the design of specified civil engineering problems/projects.
2	Ability to use advanced-level engineering theories on the analysis and/or the design of specified civil engineering problems/projects.
3	Ability to correlate advanced-level civil engineering concepts and theories within each other, as well as with the basic level engineering background received in BSc. degree education.
4	Ability to design an efficient research methodology and to carry out an advanced level of research on a specific civil engineering topic.
5	Ability to carry out teamwork activities with other specialized civil engineers or participate in teamwork activities of multi-disciplinary nature for the solution of the targeted problem.
6	Ability to produce innovative and efficient solutions to specific civil engineering problems.
7	Ability to write advanced level of technical reports, articles as well as graduate studies thesis and/or to carry out presentations on the studied engineering projects.
8	Ability to update background information with continuous efforts in following recent developments in different branches of civil engineering.

➢ COURSE & PROGRAM OUTCOMES MATRIX

		Program Outcomes							
Course Code	Course Name	1	2	3	4	5	6	7	8
First Year - First Semester									
GCC603	Compulsory course (Research Methods (Common Course))	5	5	5	5	5	4	5	5
CIV5xx***	Technical course**	*1	*2	*3	*4	*5	*6	*7	*8
CIV5xx***	Technical course**	*1	*2	*3	*4	*5	*6	*7	*8
CIV5xx***	Technical course**	*1	*2	*3	*4	*5	*6	*7	*8
First Year - Second Semester									
CIV5xx***	Technical course**	*1	*2	*3	*4	*5	*6	*7	*8
CIV5xx***	Technical course**	*1	*2	*3	*4	*5	*6	*7	*8
CIV5xx***	Technical course**	*1	*2	*3	*4	*5	*6	*7	*8
Second Year - First Semester									
CIV588	Seminar	5	5	5	5	5	4	5	5
Second Year - Second Semester									
CIV598	Thesis	5	5	5	5	5	4	5	5
Technical (Field-Related) Elective Courses									
***	**	*1	*2	*3	*4	*5	*6	*7	*8
CIV547	Ultimate Design of Structures	5	5	4	5	4	3	4	3
CIV529	Advanced Strength of Materials	5	5	5	4	4	3	3	3
CIV530	Advanced Project Management	4	4	4	4	5	3	5	4
CIV509	Advanced Climate Change and Infrastructure	4	4	4	4	4	3	4	4
CIV507	Integrated Water Resources Management	4	4	4	4	4	3	5	4
CIV562	Unsaturated Soils	4	4	4	4	4	4	3	3
CIV584	Advanced GIS in Civil Engineering	4	4	4	4	4	4	4	4
CIV583	Soft Computing in Civil Engineering	4	4	3	4	4	4	4	4
CIV557	Advanced Pavement System	4	4	3	4	5	4	3	4
CIV546	Reinforced Concrete Building Design Fundamentals & Details	5	5	4	5	4	4	3	4
CIV573	Coastal and Harbor Engineering	5	5	3	4	4	4	4	4
CIV556	Plastic Design of Steel Structures	5	5	4	5	4	4	4	4
CIV504	Advanced Steel Structures Design	5	5	4	5	4	4	3	3
CIV542	Concrete Durability	4	4	4	5	4	4	4	4
CIV544	Advanced Concrete Technology	5	5	5	4	4	3	3	3

CIV505	Theory of Elasticity	5	5	5	4	4	3	3	3
CIV528	Sustainable Urban Design	4	4	3	4	5	4	3	4
CIV539	Urban Transportation planning	4	4	3	4	5	4	3	4
CIV537	Soil Improvement	4	4	4	4	4	4	3	3
CIV512	Statistical Methods in Hydrology and Water Resources	5	4	4	4	5	4	4	4
CIV513	Advanced Hydrology	5	5	5	4	4	4	3	4
CIV511	River Engineering and project	5	3	4	4	5	4	3	4
CIV534	Shear strength and slope stability of soils	5	5	5	4	4	3	3	3
CIV533	Unsaturated Soil Mechanics	5	4	4	4	4	3	3	4
CIV506	Advanced Computer Applications in Civil Engineering	5	4	3	4	4	3	3	4
CIV535	Advanced Soil Mechanics	4	5	4	4	4	4	3	4
CIV526	Irrigation and Drainage	4	3	4	4	3	4	3	4
CIV525	Water Resources Management	4	4	4	4	4	3	3	4
CIV503	Earthquake Engineering and Structural Dynamics	4	4	4	5	4	4	3	4
CIV520	Health and Safety in Construction	4	4	4	4	5	3	5	4
CIV558	Sustainable Development and Climate Change-Energy-Water-Environment Nexus	4	4	4	4	4	3	4	4
CIV508	Advanced Sustainable Urbanization and Environment Protection	4	4	4	4	4	4	4	4
CIV532	Construction Scheduling	4	4	4	4	5	3	5	4
CIV567	Impact of Climate Change on Infrastructure	4	4	4	4	4	3	4	4
CIV565	Sustainabile Urbanization; Planning, Development, Oppurtinites and Challenges	4	4	4	4	4	3	4	4
CIV563	Hydrology and Hydro-Climatology	4	4	4	4	4	3	3	4

*- 1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

- **DURATION OF THE PROGRAM**

The duration of the Master's program with thesis is at least three semesters, starting from the period in which the courses for the registered program are given, and it should be completed in at most six semesters.

- **OCCUPATIONAL PROFILES OF GRADUATES**

Graduates of the Civil Engineering Master program may work in the design office, lab., site or teaching in a university, working at a public institution, or a private company. Additionally, they may be employed as supervisors of technical construction and design projects.

- **ACCESS TO FURTHER STUDIES**

The students graduating from this program may apply to Ph.D. postgraduate programs.

- **PROGRAM STRUCTURE**

The master program in Civil Engineering consists of 7 courses, a seminar and a thesis with 120 ECTS credits in total.

- **Course Structure Diagram with Credits**

To see the course details (such as objectives, learning outcomes, content, assessment and ECTS workload), click the relevant Course Code given in the table below.

First Year Fall Semester						
Course Code	Pre.	Course Name	Theory	Application/ Laboratory	Local Credits	ECTS
GCC603		Compulsory course (Research Methods (Common Course))	3	0	3	7.5
CIV5xx***		Technical Elective Courses**	3	0	3	7.5
CIV5xx***		Technical Elective Courses**	3	0	3	7.5
CIV5xx***		Technical Elective Courses**	3	0	3	7.5
Total						30

First Year Spring Semester						
Course Code	Pre.	Course Name	Theory	Application/ Laboratory	Local Credits	ECTS
CIV5xx***		Technical Elective Courses**	3	0	3	7.5
CIV5xx***		Technical Elective Courses**	3	0	3	7.5
CIV5xx***		Technical Elective Courses**	3	0	3	7.5
Total						22.5

Second Year Fall Semester						
Course Code	Pre.	Course Name	Theory	Application/ Laboratory	Local Credits	ECTS
CIV588		Seminar	3	0	0	7.5
Total						7.5

Second Year Spring Semester						
Course Code	Pre.	Course Name	Theory	Application/ Laboratory	Local Credits	ECTS
CIV598		Thesis			0	30
Total						30

Technical Elective Courses						
Code	Pre.	Course Name	Theory	Application/ Laboratory	Local Credits	ECTS
CIV547		Ultimate Design of Structures	3	0	3	7.5
CIV529		Advanced Strength of Materials	3	0	3	7.5
CIV530		Advanced Project Management	3	0	3	7.5
CIV509		Advanced Climate Change and Infrastructure	3	0	3	7.5
CIV507		Integrated Water Resources Management	3	0	3	7.5
CIV562		Unsaturated Soils	3	0	3	7.5
CIV584		Advanced GIS in Civil Engineering	3	0	3	7.5
CIV583		Soft Computing in Civil Engineering	3	0	3	7.5
CIV557		Advanced Pavement System	3	0	3	7.5
CIV546		Reinforced Concrete Building Design Fundamentals & Details	3	0	3	7.5
CIV573		Coastal and Harbor Engineering	3	0	3	7.5
CIV556		Plastic Design of Steel Structures	3	0	3	7.5
CIV504		Advanced Steel Structures Design	3	0	3	7.5
CIV542		Concrete Durability	3	0	3	7.5
CIV544		Advanced Concrete Technology	3	0	3	7.5
CIV505		Theory of Elasticity	3	0	3	7.5
CIV528		Sustainable Urban Design	3	0	3	7.5
CIV539		Urban Transportation planning	3	0	3	7.5
CIV537		Soil Improvement	3	0	3	7.5
CIV512		Statistical Methods in Hydrology and Water Resources	3	0	3	7.5
CIV513		Advanced Hydrology	3	0	3	7.5
CIV511		River Engineering and project	3	0	3	7.5
CIV534		Shear strength and slope stability of soils	3	0	3	7.5
CIV533		Unsaturated Soil Mechanics	3	0	3	7.5
CIV506		Advanced Computer Applications in Civil Engineering	3	0	3	7.5
CIV535		Advanced Soil Mechanics	3	0	3	7.5
CIV526		Irrigation and Drainage	3	0	3	7.5
CIV525		Water Resources Management	3	0	3	7.5
CIV503		Earthquake Engineering and Structural Dynamics	3	0	3	7.5
CIV520		Health and Safety in Construction	3	0	3	7.5

CIV558	Sustainable Development and Climate Change-Energy-Water-Environment Nexus	3	0	3	7.5
CIV508	Advanced Sustainable Urbanization and Environment Protection	3	0	3	7.5
CIV532	Construction Scheduling	3	0	3	7.5
CIV567	Impact of Climate Change on Infrastructure	3	0	3	7.5
CIV565	Sustainabile Urbanization; Planning, Development, Oppurtinites and Challenges	3	0	3	7.5
CIV563	Hydrology and Hydro-Climatology	3	0	3	7.5

Additional Notes

A total of 120 ECTS credits of courses are required to graduate. The Civil Engineering Master students must complete compulsory and technical elective courses, a Seminar course and, a Thesis to provide a total of 120 ECTS credits. Otherwise, they will not be deemed to fulfil the conditions to graduate from the program.

Important Information about the Technical Elective Courses

* The Civil Engineering Master students must ensure that while selecting the technical elective course, it should be selected in alignment with the branch that they study (branches in civil engineers are structural engineering, earthquake engineering, construction management, water/water resources, soil mechanics, construction materials and transportation).

Exam Regulations & Assessment & Grading

For each course taken at NEU, the student is given one of the letter grades below by the instructor as the semester course grade. Each grade has also its ECTS grade equivalent.
The Table below provides detailed information about the local letter grades, coefficients and ECTS grade equivalents.

SCORE	GRADE	COEFFICIENT	ECTS Grade
90-100	AA	4.0	A
85-89	BA	3.5	B*
80-84	BB	3.0	B*
75-79	CB	2.5	C*
70-74	CC	2.0	C*
60-69	DC	1.5	D
50-59	DD	1.0	E
49 and below	FF	0.0	F

*For these ones, the higher grade is applied

In order to be successful in a course, second cycle (master's degree) students have to get a grade of at least CC, and third cycle (Ph.D.) students have to get a grade of at least BB to pass a course. For courses that are not included in the cumulative GPA, students need to get a grade of S.

Apart from that, each local grade has equivalent ECTS grade which makes it easier to transfer the grades of mobility periods of students. The chart above shows the ECTS grading system at NEU.

Also, among the Letter Grades;

I	Incomplete
S	Satisfactory Completion
U	Unsatisfactory
P	Successful Progress
NP	Not Successful Progress
EX	Exempt
NI	Not included
W	Withdrawal
NA	Non-Attendance

Grade of I (Incomplete), is given to students who are not able to meet all the course requirements at the end of the semester or summer school due to a valid justification accepted by the instructor. Students who receive a letter grade "I" must complete their missing course requirements and receive a letter grade before the Last Day for Changing the "I" (Incomplete) Grades of the Previous Semester that will be announced by the University on the Academic Calendar, or one month following the date the end of semester or summer school. However, in the event of special cases, this period can be extended one week, upon the recommendation of the respective Graduate School Department Head and the decision of that Academic Board of the Department. Otherwise, a grade of "I" will automatically become a grade of FF, or a grade of U.

Grade of S (Satisfactory) is given to students who are successful in non-credited courses.

Grade of U (Unsatisfactory) is given to students who are unsuccessful in non-credited courses.

Grade of P (Successful Progress) is given to students, who continue to the courses that are not included in the GPA that has a period exceeding one semester, and regularly performs the academic studies for the respective semester.

Grade of NP (Not Successful Progress) is given to students, who do not regularly perform the academic studies for the respective semester for courses that are not included in the GPA and have a period exceeding one semester.

Grade of EX (Exempt), is given to students who are exempt from some of the courses in the curriculum.

Grade of NI (Not included) is issued to identify the courses taken by the student in the program or programs which are not included in the GPA of the student. This grade is reported in the students' transcripts with the respective letter grade. Such courses are not counted as the courses in the program that the student is registered to.

Grade of W (Withdrawal) is used for the courses that the student withdraws from in the first ten weeks of the semester following the add/drop period, upon the recommendation of his/ her advisor and the permission of the instructor that teaches the course. A student is not allowed to withdraw from courses during the first two semesters of his/her associate/undergraduate degree program and from those courses, he/she has to repeat and receive grade "W" before, which are not included in the grade average. A student is allowed to withdraw from two courses at the most during his/ her associate degree study, and four courses during his/her undergraduate study upon the recommendation of the advisor and the

permission of the instructor that teaches the course. A student has to take the course that he/she withdrew from, the first semester in which it is offered.

Grade "NA" (Non-Attendance) is issued by the instructor for students who fail to fulfil the attendance and/or requirements of the course and/or who lose their right to take the end of semester exam because they failed to take any of the exams administered throughout the semester. Grade "NA" is not considered in the average calculations.

Both the ECTS grades and the local grades of the students are displayed on the official transcript of the students.

- **GRADUATION REQUIREMENTS**

In order to graduate from this master program, the students are required;

to succeed in all of the courses listed in the curriculum of the program by getting the grade of at least CC/S with a minimum of 120 ECTS

to have a Cumulative Grade Point Average (CGPA) of 3.00 out of 4.00

to complete their compulsory seminar and thesis in a specified duration and quality.

- **MODE OF STUDY**

This is a full-time program.

- **PROGRAM DIRECTOR**

Prof. Dr. Kabir Sadeghi, Head of Civil Engineering Department-Postgraduate Program, Faculty of Civil and Environmental Engineering, Near East University

- **EVALUATION QUESTIONNAIRES**

Evaluation Survey

Graduation Survey

Satisfaction Survey