Department of Construction Management & Civil Engineering Technology

Tel.: 718-260-5575; Fax: 260-5677

CMCE New York City College of Technology
Construction Management & Civil Engineering Technology

CIVIL ENGINEERING TECHNOLOGY

New York City College of Technology
300 Jay Street, Brooklyn, NY 11201
Tel.: 718-260-5575; Fax: 260-5677
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THE CITY UNIVERSITY OF NEW YORK

CMCE Mission Statement: The mission of the Department of Construction Management & Civil Engineering Technology at New York City College of Technology is to educate our students for careers in the fields of Construction and Civil Engineering. Our focus is on the fundamental concepts and technical skills required to create a wide range of career paths in the construction and civil engineering profession. We balance practical knowledge with theory. The department will continue its long tradition of educating non-traditional students of diverse backgrounds for successful entry into the Construction Industry. Through excellence in teaching and community service, the department promotes opportunities for scholarly, personal, and professional growth. The department is also committed to maintaining a diverse faculty of Professional Engineers and Architects. Graduates will be prepared to support the diverse needs of the City of New York

Contact Information

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PROGRAMS
Civil Engineering Technology/A.A.S.
Construction Management Technology/A.A.S.
Construction Management/Certificate

FACULTY & STAFF
Prof. Anthony Cioffi, P.E, Department Chairman
Ms. Sharda Del Rio, B.T.
Prof. Sigurd Stegmaier, R.A.
Prof. Gerarda Shields, PE.
Mr. Benito Santiago, CLT

Associate in Applied Science in CIVIL ENGINEERING TECHNOLOGY

The curriculum in civil engineering technology is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. (TAC/ABET 111 Market Place, Suite 1050, Baltimore, MD 21202-4012) as an engineering technology program. The program prepares students for positions as engineering technicians in a broad range of public works projects, including structures, transportation facilities, water supply, waste water treatment, geotechnical, as well as construction inspection, material testing and surveying. Included in the curriculum are courses in the theory of structures, hydraulics, surveying, soils, materials testing and training for American Concrete Institute certification as Field Inspector (Level 1) of Fresh Concrete. Computer applications are incorporated into all technical courses. Graduates of this program find immediate employment with consulting engineering firms, testing laboratories, industrial organizations, governmental agencies involved with providing public works services and safeguarding our environment. Occupational titles include junior engineer, engineering technician, surveyor, construction inspector and CADD operator/designer.

Applicants are urged to complete at least two years of academic mathematics in high school to avoid delaying their progress in this curriculum.

Bachelor of Technology in Facilities Management

Students who have successfully completed the requirements for this degree are eligible for transfer into the bachelor of technology in facilities management program with a concentration in Construction Management. For more information, contact Professor Anthony Treglia in the Department of Environmental Control Technology at (718) 260-5160.

Employment Opportunities

The Civil Engineering Technology Program covers many disciplines offering both technical and practical experience. Graduates of this program are employed by engineering firms, testing laboratories, industrial organizations, and governmental agencies (federal, state, and municipal).

Despite periodic rises and falls, the long range employment outlook for civil engineering technicians is very favorable, due to the steady need to maintain and upgrade our public works infrastructure. According to the latest projections of this nation's employment needs, it is estimated that more than one million Engineering Technicians will be required to meet the needs of industry and government in the immediate future. The public demand for mass transportation improvements, pure drinking water, sewerage treatment, and unpolluted air requires large numbers of skilled technicians now and in future. The Department of Construction Management & Civil Engineering Technology maintains strong ties with employers in the industry and takes great pride in its placement activities and success.

Entry salaries start between $32,000 and $45,000. Working conditions generally include a 35-40 hour week and paid holidays and vacations. Many firms offer health insurance, hospitalization, and tuition reimbursement for those employees who wish to continue their studies.

Recent graduates of this program have been employed in entry-level construction management positions as well. Government-related agencies and organizations which regularly employ these graduates include: The Dormitory Authority of the State of New York, The Port Authority of New York and New Jersey and The New York City Department of Transportation. Recent employers of the graduates of this program include numerous general contractors, engineering consulting firms and construction management firms such as Arnell Construction Co, Slattery Construction Co, Chas. Sells, Consulting Engineers, Delta Contracting, BMI Construction, Slattery Construction Co, Future Tech Consultants and Forest City Ratner Corp, DMJM+Harris, P.B.

ASCE Student Club

The American Society of Civil Engineers (ASCE) is the oldest nationa engineering society. ASCE is dedicated to the mission of enhancing the quality of life worldwide by advancing professional knowledge and improving the practice of civil engineering in service to humanity.

Founded in 1852, the Society has over 120,000 members, including over 10,000 Student Members. ASCE sponsors specialty conferences and continuing education courses; provides the government with technical expertise on civil engineering related issues; monitors Congressional legislation critical to civil engineers; and conducts an active public awareness program. Over 700 technical, professional, and management committees within ASCE are working to advance the theory and practice of the profession.

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New York City College of Technology's Student Club strives to follow the mission set forth by ASCE by offering technical presentations to student members on current construction practices and technology, taking part in the National Steel Bridge Competition which tests the knowledge, organization and leadership skills of our members, and field trips to construction sites in the New York City area.

Associate in Applied Science in CIVIL ENGINEERING TECHNOLOGY

Curriculum by Required Core and Additional Courses

The College will grant an associate in applied science degree (AAS) with a major in construction management technology upon satisfactory completion of the required 64 credits listed.

CIVIL ENGINEERING TECHNOLOGY

MAJOR COURSES		Credits
CMCE 1104/CT 104	Statics and Strength of Materials I	2
CMCE 1110/CT 110	Construction Drawings	2
CMCE 1152/CV 152	Surveying	3
CMCE 1204/CT 204	Statics and Strength of Materials II	3
CMCE 1252/CV 252	Route Surveying	3
CMCE 1255/CV 255	Computer Applications in Engineering Technology	3
CMCE 2306/CT 306	Materials Testing Laboratory	2
CMCE 2315/CT 315[3]	Elements of Structural Design-Steel	3
CMCE 2351/CV 351	Hydraulics	3
CMCE 2352/CV 352	Soil Mechanics (Laboratory)	3
CMCE 2415/CT 415[3]	Elements of Structural Design-Concrete	3
CMCE 2452/CV 452	Civil Engineering Drawing (CAD)	2
CMCE 2454/CV 454	Applied Hydraulics: Water Supply & Sewerage Treatment	2
CMCE 2455/CV 455	Materials & Methods of Construction	2
	Subtotal	**36**

OTHER REQUIRED COURSES/A.A.S. CORE		
MAT 1375[1]	Mathematical Analysis	4
MAT 1475[1]	Calculus I	4
PHYS 143	Physics 1.2	4
PHYS 1434	Physics 2.2	4
ENG 1101	English Composition I	3
BS/SS[2]	Behavioral Science/Social Science	3
LAP[2]	Literature/Aesthetics/Philosophy	3
COMM[2]	Communications (EG 121 or EG 133)	3
	Subtotal	**28**

TOTAL CREDITS REQUIRED FOR THE DEGREE 64

1 Students without the requisite math background to enter MAT 1375 will be required to take MAT 1175 and/or MAT 1275 in preparation. This will increase the number of required credits for the degree by up to eight.

2 See the college catalog for detailed explanation of core required courses and categories.

3 See the course descriptions for an important message regarding these courses.

Associate in Applied Science in CIVIL ENGINEERING TECHNOLOGY

Curriculum by Semester

The College will grant an associate in applied science degree (AAS) with a major in civil engineering technology upon satisfactory completion of the required 64 credits listed.

FIRST SEMESTER		**Credits**
CMCE 1152	Surveying	3
CMCE 1104	Statics & Strength of Materials I	2
CMCE 1110	Construction Drawings	2
MAT 1375 [1]	Mathematical Analysis	4
PHYS 1433	Physics 1.2	4
ENG 101	English Composition I	3
	Subtotal	**18**

SECOND SEMESTER		
CMCE 1252/CV 252	Route Surveying	3
CMCE 1255/CV 255	Computer Applications in Engineering Technology	3
CMCE 1204/CT 204	Statics & Strength of Materials II	3
MAT 1475 [1]	Calculus I	4
PHYS 1434	Physics 2.2	4
	Subtotal	**17**

THIRD SEMESTER		
CMCE 2351/CV 351	Hydraulics	3
CMCE 2352/CV 352	Soil Mechanics (Laboratory)	3
CMCE 2315/CT 315 [3]	Elements of Structural Design-Steel	3
LAP [2]	Literature/Aesthetics/Philosophy	3
COMM [2]	Communications (EG 121 or EG 133)	3
	Subtotal	**15**

FOURTH SEMESTER		
CMCE 2452/CV 452	Civil Engineering Drawing (CAD)	2
CMCE 2454/CV 454	Applied Hydraulics/Water Supply & Sewerage Treatment	2
CMCE 2455/CV 455	Materials & Methods of Construction	2
CMCE 2415/CT 415 [3]	Elements of Structural Design-Concrete	3
CMCE 2306/CT 306	Materials Testing Laboratory	2
BS/SS [2]	Behavioral Science/Social Science	3
	Subtotal	**14**

TOTAL CREDITS REQUIRED FOR THE DEGREE 64

NOTES

1 Students without the requisite math background to enter MAT 1375 will be required to take MAT 1175 and/or MAT 1275 in preparation. This will increase the number of required credits for the degree by up to eight.

2 See the college catalog for detailed explanation of core required courses and categories.

3 See the course descriptions for an important message regarding these courses.

CMCE COURSES:

CMCE 1104/CT 104
Statics & Strength of Materials I
2 cl hrs, 2 cr
This course provides an introduction into the basic theory necessary for structural analysis and design. It emphasizes the use of standard charts and tables in conjunction with a calculator, for the solution of elementary Statics and Strength of Materials problems. The concepts of force, stress, strain and equilibrium are explored in depth. Student projects include the use of a desktop computer programs.
Pre- or corequisite: MAT 1175/MA 175

CMCE 1110/CT 110
Construction Drawings
1 cl hr, 2 lab hrs, 2 cr
This course will introduce the student to the basic drafting techniques that are required in the construction field. Students will learn the proper use of drafting equipment. In addition, through actual drawings, the student will develop an understanding of architectural working drawings relating to wood frame residential buildings and commercial buildings and their use in construction projects. Topics will include drafting techniques and equipment, lettering, line work, geometric constructions, site plans, foundation drawings, floor plans, electrical, plumbing and heating/air conditioning plans.
Prerequisite: None

CMCE 1152/CV 152
Surveying
1 cl hr, 4 lab hrs, 3 cr
This course enables students to perform actual surveying work using traditional surveying equipment. Fundamental theory of plane surveying, surveying procedures including measurements of distances, elevations and direction are studied. Principles and use of field equipment, including tapes, levels, transits, theodolites and electronic distance meters (EDM), field and office work, including traverses, topographic surveys and mapping, construction surveys, earthwork computations, stadia, note-keeping and office calculations. Computer applications for traverse computations will be covered as well as an introduction to CAD.
Pre- or corequisites: MAT 1275/MA 175, CMCE 1110/CT 110

CMCE 1204/CT 204
Statics and Strength of Materials II
3 cl hr, 3 cr
This course is a continuation of CT104, and provides additional theory necessary for structural analysis and design. Engineering concepts for shear and bending moment diagrams, section properties, beam analysis and truss analysis are explored in depth. Student projects include the use of a desktop computer for the solution of beam analysis, section properties, and trusses.
Prerequisite: CMCE 1104/CT 104

CMCE 2252/CV 252
Route Surveying
1 cl hr, 4 lab hrs, 3 cr
Theory and practice of route surveying, including horizontal curves, vertical curves, spirals, earthwork, profiles and mapping are covered in this course. Advanced surveying projects in field and office, including computer applications are covered.
Prerequisite: CMCE 1152/CV 152

CMCE 1255/CV 255
Computer Applications in Engineering Technology
2 cl hrs, 2 lab hrs, 3 cr
This course provides a working knowledge of computers and their application in the fields of Construction and Civil Engineering. Topics include microcomputer systems and attendant hardware, computer terminology, disk operating system (DOS & Windows), word processing programs such as Word, spreadsheets such as Excel and presentation software such as Powerpoint. Visual basic is also introduced in this course. The student will learn how to use these tools to manage construction projects, prepare estimates, work proposals and to present oral presentations. Each topic assignment is based on a specific construction management or civil engineering topic.
Pre- or corequisites: MAT 1275/MA 275, CMCE 1104/CT 104, *CUNY Certification* in reading and writing

CMCE COURSES continued:

CMCE 2306/CT 306
Materials Testing Laboratory
1 cl hr, 2 lab hrs, 2 cr
This course will explore the mechanical properties of steel, timber and concrete through laboratory testing. Standard tension, compression, shear, torsion, ductility and bending tests are performed in accordance with ASTM standards. Principles of field inspection of fresh concrete are covered as well. Students are given the opportunity to earn certification by the American Concrete Institute as "Field Inspectors, Level 1, of Fresh Concrete."
Pre- or corequisites: CMCE 2315/CT 315, *CUNY Certification* in reading and writing

CMCE 2315/CT 315
Elements of Structural Design–Steel
3 cl hrs, 3 cr
This course provides a working knowledge of the basic concepts encountered in the analysis and design of structural steel elements. The American Institute of Steel Construction (AISC) specifications for the design, fabrication and erection of structural steel for buildings are studied particularly as they apply to the design of beams, columns and connections. Analysis methods and procedures are developed for solving practical problems encountered in civil engineering. Students will learn to use the charts, tables, design aids and specifications available for simple structural design, which are contained in the "AISC Steel Handbook". Student projects include the use of a desktop computer
Prerequisite: CMCE 1204/CT 204;
Note: Students should not register for both CMCE 2315 and CMCE 2415 simultaneously without *Departmental Approval*.

CMCE 2351/CV 351
Hydraulics
3 cl hrs, 3 cr (fall only)
Fundamentals of hydraulics for civil engineering technicians including properties of fluids, fluid statics, manometers, forces on submerged plane and curved surfaces, buoyancy, principles of fluid flow, flow measurements, nozzles, Venturi meters, head losses. Use of a desktop computer, including commercial and non-commercial software as well as standard nomographs for solving hydraulic problems.
Pre- or corequisites: CMCE 1204/CT 204, MAT 1375/MA375, PHYS 1433/SC433

CMCE 2352/CV 352
Soil Mechanics (Laboratory)
2 cl hrs 3 lab hrs, 3 cr
This course combines soil theory, field practice and lab procedures. The student will learn the origin and nature of soils, soil classifications, sampling, soil properties, strength characteristics, soil water relationships, settlement & consolidation concepts, lateral earth pressure and subsurface stresses. Methods and procedures are developed for solving practical soil mechanics type problems encountered in civil engineering projects. Laboratory tests, related calculations and computer applications are all incorporated into this course.
Pre- or corequisites: CMCE 1204/CT 204, MA 375, SC 433, CUNY Certification in Reading and Writing

CMCE 2415/CT 415
Elements of Structural Design–Concrete
3 cl hrs, 3 cr
This course provides a working knowledge of the basic concepts encountered in the analysis and design of reinforced concrete elements. The Building Code Requirements for Reinforced Concrete (ACI latest edition) is studied as it applies to the design and analysis of concrete beams, slabs, columns and footings for buildings. Analysis methods and procedures are developed for solving practical problems encountered in civil engineering. Students will learn to use tables and select design aids for simple structural designs. Basic detailing and inspection criteria are also introduced. Student projects include the use of a desktop computer
Prerequisite: CMCE 1204/CT 204;
Note: Students should not register for both CMCE 2315 and CMCE 1415 simultaneously without *Departmental Approval*

CMCE COURSES continued:

CMCE 2452/CV 452
Engineering Drawing (AUTOCAD)
1 cl hr, 3 lab hrs, 2 cr
This course provides the students with a working knowledge of Computer Aided Drafting. Through the use of structural drawings for steel, wood and concrete, students build on their basic knowledge of both civil engineering and construction drawing principles and standards. Methods and procedures are developed for solving practical drafting problems encountered in construction projects using Computer Aided Drafting methods. Students will learn the sequence of commands and/or steps required to start, create, save and plot CAD drawings. Improved skills are also developed in the reading and interpretation of typical working drawings from civil engineering and construction projects
Prerequisites: CMCE 1110/CT 110, CMCE 1252/CV 252; pre- or co-requisite: CMCE 2315/CT 315 or CMCE 2415/CT 415

CMCE 2454/CV 454
Applied Hydraulics: Water Supply & Sewerage Treatment
2 cl hrs, 2 cr (spring only)
The student will learn the principles of water supply and sewerage collection and treatment, with an emphasis on NYC's water supply and sewerage treatment systems. Storm water and sewerage design concepts and theory will be explored as well as elementary hydrology including surface and aquifer systems. Considerations of pipe flow, minor losses, series vs. parallel pipe systems, pumping systems as well as open channel flow will be covered.
Prerequisites: CMCE 2351/CV 351, MAT 1375/MA 375

CMCE 2455/CV 455
Materials & Methods of Construction
2 cl hrs, 2 cr
Construction materials and methods used in building construction of all public works facilities. Also covered are office and field practices involved in such projects. Current materials, methods and practices of construction using NYC Building and Zoning codes, as well as A.A.S.H.T.O. codes as reference are covered. Introduction to the basic principles of construction management, including the design and construction process, scheduling and contracts.
Prerequisite: CMCE 1110/CT 110, CMCE 1252/CV 252