

Thinking of a Career in Civil Engineering?

At this site you will find information on careers in civil engineering and on the Bachelor of Science in Civil Engineering Program at The University of Toledo. We included a table listing the courses that can be taken before enrolling at The University of Toledo, how to have courses transferred, how to apply for admission to The University of Toledo and some information about our mandatory co-op education program. For questions, please do not hesitate to contact Dr. Gruden or our Academic Program Coordinator, Ms. Michelle Rose.

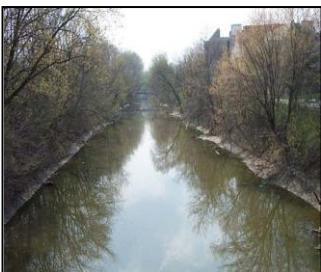
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CAREERS IN CIVIL ENGINEERING

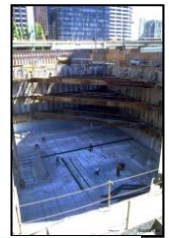
Civil engineering is the professional engineering discipline that deals with the design and construction of the physical and natural built environment, including works such as highways, bridges, buildings, dams, tunnels, storm drains, water treatment plants and waste treatment plants. Civil engineering is divided into many sub-disciplines. Most of our graduates are employed in the areas of environmental engineering, geotechnical engineering, structural engineering, transportation engineering and construction engineering. A brief overview of these sub-disciplines is provided below. For additional information, please visit the Career Guidance pages of the American Society of Civil Engineers at http://www.asce.org/kids/think_career.cfm.



Environmental engineering is the application of science and engineering principles to improve the environment; to provide healthy water, air, and land for human habitation and for other organisms; to treat wastes and to remediate polluted



Geotechnical engineering is the branch of civil engineering concerned with the engineering behavior of earth materials; investigation of subsurface conditions and materials; designing earthworks and foundations; and monitoring site conditions for earthwork and foundation construction.



Structural engineering is a field of civil engineering that deals with the design of structural systems to provide support for structures and to resist loads. Structural

engineers must ensure that their designs are safe from collapse; remain serviceable under normal loading and do not experience noticeable deformations.



Transportation engineering is the sub-discipline concerned with the safe and efficient movement of people and goods transport. Transportation engineers are responsible for forecasting transportation needs

and development of planning models for future transportation need. Design aspects of transportation facilities include determining materials and thickness used in pavements, designing the geometry of highway and other transportation systems, determination of highways sign and traffic control systems.



Construction engineering concerns the planning and management of the construction of all types of systems designed by civil engineers. Construction engineers are responsible for building and site layout; quality assurance and quality control, onsite material testing, cost estimating, planning and scheduling, safety engineering, materials procurement and

other activities. Construction engineers can also be called upon to analyze problems and design temporary structures or to design construction processes.

EMPLOYMENT OPPORTUNITES

There are many employment opportunities for our graduates. Our graduates are employed by private organizations such as consulting engineering firms, manufacturing corporations, utility corporations and construction companies. They are employed by local, state and federal organizations. Because of the high demand for civil engineers, our graduates are able to find employment throughout the United States and the world. Employment opportunities for co-operative education experiences remain excellent. Many of our students are offered employment with their co-op employers.

Transferring to the University of Toledo

CIVIL ENGINEERING VERSUS CONSTRUCTION ENGINEERING TECHNOLOGY

There is a Civil Engineering and a Construction Engineering program at The University of Toledo. The Bachelor of Science in Civil Engineering (BSCE) is a four-and-a-half-year program with three required co-op terms. This program has a strong emphasis on *mathematics* and *calculus-based physics*. Classes are primarily taught during the day and are aimed at full-time student enrollment with alternating co-op terms beginning in the second year. This fully accredited program enables students to realize excellent careers in design, construction, project engineering, project management, sales, research and development, and many others. You can visit our site at <http://www.eng.utoledo.edu/civil/>.

Construction Engineering Technology (CET) is also a Bachelor of Science program. CET has a strong emphasis on *application* and *hands-on engineering*. Classes are scheduled for both day students and evening students and are aimed at either full-time or part-time student enrollment. Co-op experience for the construction engineering technology program is optional. Traditionally, many students who are already employed in some form of engineering take classes in this program while working at their job. This fully accredited program enables students to start or continue excellent careers in the construction or civil engineering industry. However, positions requiring advanced mathematics and calculus-based physics are not normally open for graduates in CET. Students who have an Associates of Applied Science (AAS) degree will be able to transfer their credits for a Bachelor of Science degree in Construction Engineering Technology. If you are interested in the Bachelor of Science in Construction Engineering Technology program at The University of Toledo, please contact the CET Program Director, Dr. Nicholas Kissoff at nicholas.kissoff@utoledo.edu or at 419-530-3165. You can visit our site at <http://www.cet.et.utoledo.edu/>.

MINIMUM REQUIREMENTS FOR ADMISSION TO THE BSCE DEGREE PROGRAM

In order to be accepted in the BSCE program you must have attained a cumulative GPA of at least 2.75, and must have completed Calculus I and College Chemistry with a grade of C or higher.

THE CO-OP PROGRAM

One of the degree requirements for the BSCE is three full semesters of satisfactory full time engineering work at a company. Our office in charge of the co-op program is called the Engineering Career Management Center (ECMC) and helps students find positions in companies locally, across the United States and Canada, and for some students, in foreign countries. Transfer students needing the assistance of our ECMC will normally have their first co-op semester after they have been enrolled at UTOL for at least one semester. In any case, your first co-op term will be determined based on the courses you have completed, the courses you need to take and when they will be offered.

HOW AND WHERE TO APPLY FOR ADMISSION

To apply for admission, contact the Office of Admissions [419-530-5757] or apply on our website: <http://admission.utoledo.edu/>. Be sure to indicate that you are a transfer student. The Office of Admissions will require an official transcript sent directly from the records office at your school and will base your admission on the requirements listed above. Note: if you are still in attendance, you will eventually need to have a second transcript sent which will include the grades in the courses you are currently taking in order to award you credit for these courses.

RECOMMENDED COURSES TO TAKE AND THEIR UTOL EQUIVALENTS

The following table lists courses at UTOL and provides space to enter equivalent courses that will transfer to the University of Toledo. Please see the bottom of the table for information on course applicability. Also indicated is the recommendation level. Courses not included in the BSCE curriculum at The University of Toledo will not apply to the BSCE degree.

University of Toledo			Your School			
Course Name	Course Number	Sem. Credit Hours	Course Number	Credit Hours	Required to Transfer	Take at Either School
Calculus I	MATH 1850	4			X	
Chemistry I	CHEM 1230	4			X	
Science Elective	Must not be Chemistry or Physics	3				X
Calculus II		3				X
Calculus III	MATH 2850	4				X
Num. Methods and Lin. Algebra	MATH 2890	3				
Differential Equations	MATH 3860	3				X
English Comp.	ENGL 1110	3				X
Technical Writing	ENGL 2950 or ENGL 2960	3				X
Physics I	PHYS 2130	5				X
Physics II	PHYS 2140	5				X
Civil Eng. Meas. (Surveying)	CIVE 1100	3				X
CAD for Civil Eng.	CIVE 1110	1				X
Humanities/Fine Arts					HIST, PHIL, REL, MUS, etc. Required to take two courses from two different departments.	
Social Science					CON, PSY, PSC, ANTH, etc. Required to take two courses from two different departments.	
Diversity of U.S. Culture					Variety of courses. One course required.	
Diversity of Non-U.S. Culture					Variety of courses. One course required.	

Note: One diversity course can also count for a Humanities/Fine Arts or Social Science elective credit. Thus, a student takes a total of five courses to fulfill requirements for Humanities / Fine Arts, Social Sciences and Multicultural (Diversity) Studies.

Information on Humanities / Fine Arts, Social Sciences and Multicultural (Diversity) Studies requirements can be found at: <http://www.eng.utoledo.edu/civil/multicultural.pdf>

Information on the Course Applicability System (CAS)

The U.Select website provides current course equivalencies for transfer students. To use U.Select, simply visit www.transfer.org and click on Ohio. Then proceed as follows:

1. Click on "Guest Login" and then "Course Equivalency Guides"
2. Choose "Ohio" and "The University of Toledo" as the institution you are transferring to
3. Choose the state and the institution that you are transferring from
4. Choose the subject area from the drop-down box

For example, if you are looking to see if your math course will transfer, click on the subject area at your school (such as "MATH" or "MTH") and U.Select will list the equivalent courses at the University of Toledo.

You can also visit the following website for information on transfer course equivalency <http://registrar.utoledo.edu/tca/>. The current University of Toledo catalogue can be viewed at <http://catalog.utoledo.edu/>.

WHEN IS IT BEST TO START IN THE BSCE PROGRAM AT THE UNIVERSITY OF TOLEDO?

The short answer is to transfer to UTOL before the spring semester of your sophomore year, but this depends on the courses that you have completed that will count for a BSCE degree at The University of Toledo. The table below shows the first two years of a hypothetical schedule for students. Your actual schedule will depend on course availability and your academic background. The UTOL course CIVE2000 Professional Development is offered in spring semester and is required before your first co-op. Thus, you will need to spend at least one semester at UTOL before you can co-op, and more than one semester if you do not start at UTOL in spring semester. A good estimate for your graduation with a BSCE is two complete years after you complete your first co-op at The University of Toledo.

Freshman/Fall	Hrs.	Freshman/Spring	Hrs.	Freshman/Summer	Hrs.
English Composition	3	Technical Writing	3	Best advice is to make up deficits in English, Math, Chemistry or Physics	
Chemistry I	4	Calculus II	5		
Calculus I	5	Hum/SocSci/Multcult	3		
Construction & Surveying Draft	3	Hum/SocSci/Multcult	3		
Total	15	Total	14		

Sophomore/Fall	Hrs.	Sophomore /Spring	Hrs.	Sophomore /Summer	Hrs.
Physics I	5	Differential Equations	3	Transfer to UTOL or make up deficits in English, Math, Chemistry or Physics and/or take science elective or Hum/SocSci/Multcult electives	
Calculus III	4	Physics II	5		
Land and Route Surveying	3	Science Elective	3		
Hum/SocSci/Multcult	3	Transfer to UTOL or make up deficits in English, Math, Chemistry or Physics			
Total	15				

LONG RANGE PLANS AT THE UNIVERSITY OF TOLEDO

Engineering students are assigned to one of two long range plans in the first year of their attendance at UTOL. The long range plans are designated 'Long Range Plan A' and 'Long Range Plan B'. Transfer students are evaluated for the courses that they have completed before and after transferring to UTOL and assigned to the long range plan that best suits their situation so that they can graduate as soon as possible. Flow charts are available for the long range plans. The flow charts can be seen at <http://www.eng.utoledo.edu/civil/newweb/undergraduate/flowcharts.htm>.