M.S. IN ENGINEERING (ENERGY ENGINEERING - ONLINE)

OVERVIEW

Dr. Carmen Cioc, program director

The College of Engineering at the University of Toledo offers a Master of Science degree in Engineering with a concentration in Energy Engineering that can be completed part-time, online. The energy field, subject to ever-increasing challenges, is vital to all aspects of society and necessary for assuring a sustainable quality of life across the globe. Graduates of the University of Toledo's Master of Science in Engineering with a Concentration in Energy Engineering degree develop expertise in many complementary areas, such as public policy, energy management, energy economics and finance, and energy consulting. This highly customizable program is not just for engineering graduates with technical portfolios. With flexibility and options for coursework in law, business and finance, the concentration in energy engineering is ideal for professionals at companies that generate and distribute energy, as well as anyone seeking to manage energy portfolios in a variety of businesses and industries. To accommodate working professionals, course work for this degree program may be taken completely online via distance learning.

ADMISSIONS REQUIREMENTS

To be admitted to the Master of Science in Engineering with a concentration in Energy Engineering program, applicants must have a bachelor's degree in engineering, engineering technology or in a closely related field (e.g., one of the mathematical, physical or biological sciences). Admissions are made on an individual basis and consider the applicant's previous academic record, the intended area of study, and the capacity of the College of Engineering.

Application requirements:

- **Degree:** Applicants must hold a four-year bachelor's degree from a regionally accredited college or university
- **GPA:** Applicants must have at least a 2.7/4.0 grade point average from previous undergraduate coursework
- **Application:** UToledo application required
- **GRE:** Required for applicants with a GPA below 2.7
- **Transcripts:** Required
- **Statement of Purpose:** Required
- **Letters of Recommendation:** 3
- **Proof of English language proficiency:** Required for students from non-English speaking countries. See University graduate admissions for minimum test score requirements and exceptions.
- **Resume:** Required

Application priority deadlines for admissions decisions:

- **Fall:** No deadline
- **Spring:** No deadline
- **Summer:** No deadline

Applicants should have a minimum grade point average (GPA) of 2.7 in previous undergraduate work from appropriately accredited academic institutions or from an academic institution with high academic standards considered appropriate and acceptable by the College of Engineering and the College of Graduate Studies. Applicants having a GPA less than 2.7 who otherwise demonstrate potential for graduate study may be admitted to the master's program on a provisional basis at the discretion of the College. Students with an undergraduate GPA below 2.7 must provide GRE scores. Information on the GRE is available on the GRE Web site: http://www.gre.org.

Students who graduated with a bachelor's degree from the University of Toledo do not need to submit an official transcript. Students who did not graduate from the University of Toledo need to contact the office of the registrar at their undergraduate institution to arrange for transmission of their undergraduate transcripts. All students from non-English speaking countries must submit proof of English language proficiency.

Students applying to the program without a B.S. in engineering will be required to have a least:

- calculus through ordinary differential equations (2 semesters);
- physics (2 semesters);
- chemistry and/or engineering materials (1 semester); and
- any three out of the following six: statics, dynamics, electronics, electric circuits, fluid mechanics, or thermodynamics.

Students lacking one or more of the above courses must take the necessary courses before entering the program. Contact the program director to determine appropriate courses to meet program prerequisites.

Students can apply for non-degree student status and take up to nine credit hours of graduate level classes that may be applied to their graduate degree program. Students with non-degree status can be admitted as regular graduate students at a later date.

For additional information regarding this program, please consult the College of Engineering's Web site at http://www.utoledo.edu/engineering/graduate-studies/energyengineering.html or contact t (EnergyEngineering@eng.utoledo.edu)he program director.

DEGREE REQUIREMENTS

The Master of Science in engineering program with a concentration in energy engineering is comprised of 30 credit hours. The project option requires the completion of a minimum of 24 credit hours of approved graduate-level course work (nominally 8 courses) and a six-hour practice-oriented project in consultation with their advisor, for a total of 30 credit hours. The coursework option requires the completion of at least 30

credit hours of approved graduate-level course work (nominally 10 courses).

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Additionally, all students are expected to complete the following requirements to obtain the Master of Science in Energy Engineering degree program at the University of Toledo:

Code	Title	Hours
Energy Engineering Core Courses		
Minimum of four courses		*12*
GNEN 6200	Environmental Efficiency for Buildings	
EECS 5240	Power Systems Operation	
EECS 5460	Power Systems Management	
EECS 5480	Power Electronics 1	
MIME 5410	Alternative Energy	
MIME 5820	Sustainability Analysis and Design	
MIME 5980	Special Topics	
Business Core Courses		
Minimum of one course		*3*
ACCT 5000	Financial And Managerial Accounting	
ACCT 5100	Data Analytics in Accounting	
BLAW 6100	Business, Government And Society	
BUAD 6300	Strategic Marketing And Analysis	
BUAD 6600	Supply Chain Management	
BUAD 6800	Information Technology And E-Business	
EFSB 6590	New Venture Creation	
FINA 5210	Economics For Business Decisions	
OSCM 5520	Analysis of Manufacturing and Service Systems	
Engineering Electives		
Minimum of two courses		*6*
CIVE 5690	Sustainability Engineering	
GNEN 5500	Applications of Engineering Analysis	
GNEN 5700	Applied Probability and Statistics	
GNEN 6700	Management of Projects and Technological Innovation	
EECS 5260	Control Systems Design	
MIME 5080	Operations Research I	
MIME 6980	Special Topics	
Capstone Option - Work Related Project or Coursework		
Work Related Project Option		*9*
GNEN 6920	Special Projects in Engineering (6 cr hr)	
Any course from those listed above (3 cr hr)		
Coursework Only Option		*9*
Any three courses from those listed above (9 cr hr)		

Students may meet their coursework requirements by completing the requirements above, as well as any of the approved elective courses in consultation with their academic advisor. Elective courses may be taken on campus or via distance learning. Several graduate offerings from the College of Engineering, the College of Business and Innovation and the College of Law are available for selection.

Students following the coursework only option may take up to 6 hours of approved independent study toward the 30 credit hours requirement. Students will find it possible to complete the degree requirements in five semesters or less, depending on academic backgrounds and course loads. If students choose the project option, they may complete the course requirements in four semesters by taking two recommended courses per semester and completing the project in one or two semesters. The six-credit (6 hrs.) project for fulfillment of the project option may be carried out in coordination with the student's employer utilizing skills learned in this program. Students should consult their advisor regarding this option.

For transfer credit, students should refer to the general policies of the College of Graduate Studies. Students may use no more than nine credit hours earned at another university with a grade of B or better toward the Master of Science in engineering, and in no case may the project be satisfied by work already completed at another institution or on the job.

In order to be awarded the Master of Science in engineering degree, the student must have at least a B average (minimum GPA of 3.0/4.0) for all graduate course credits in the program as well as for their entire graduate transcript. Only credit hours obtained with a letter grade of "C" or higher, or an "S" grade for the limited number of classes offered on a satisfactory or unsatisfactory basis, will fulfill degree requirements.

First Year		**Hours**
Fall semester		
EECS 5480	Power Electronics 1	3
MIME 5410	Alternative Energy	3
Spring Semester		
EECS 5240	Power Systems Operation	3
GNEN 6200	Environmental Efficiency for Buildings	3
	Hours	**12**
Second Year		
Fall semester		
ACCT 5000	Financial And Managerial Accounting	3
CIVE 5690	Sustainability Engineering	3
Spring semester		
GNEN 5500	Applications of Engineering Analysis	3
GNEN 5700	Applied Probability and Statistics	3
	Hours	**12**
Third Year		
Fall semester		
EECS 5460	Power Systems Management	3

GNEN 6700	Management of Projects and Technological Innovation	3
	Hours	**6**
	Total Hours	**30**

- PLO 1. Students will obtain a comprehensive understanding of critical engineering concepts.\\n
- PLO 2. Students will obtain proficiency in advanced topics of mathematics and statistics\\n
- PLO 3. Students will obtain proficiency in topics in business including accounting, business law, and operations management\\n
- PLO 4. Students will be able to apply technical solutions to global and societal issues