

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

## OVERVIEW

Raghav Khanna, 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. 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. This program can also be completed part-time.

## 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 take into account the applicant's previous academic record, the intended area of study, and the capacity of the College of Engineering.

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 deemed 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 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 scores for the test of English as a Foreign Language (TOEFL). The minimum acceptable score for the TOEFL is 213 (for computer-based test) or 80 (for internet-based test).

Students entering the program will be required to have at least:

- calculus, through ordinary differential equations (3 semesters),
- physics (2 semesters) and
- chemistry and/or engineering materials (1 semester) and
- any three out of the following six courses:
  - statics,
  - dynamics,
  - electronics,
  - electric circuits,
  - fluid mechanics and
  - thermodynamics.

Students lacking one or more of the above courses must take the necessary courses before entering the program.

Students can apply for special student status and take up to nine credit hours of graduate classes, which may be applied to their graduate degree program. Students with special 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 [EnergyEngineering@eng.utoledo.edu](mailto:EnergyEngineering@eng.utoledo.edu).

## 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).

Additionally, the Master of Science in engineering program with a concentration in energy engineering at the University of Toledo has three options for specialization:

1. Power generation and distribution (option 1), or
2. Energy utilization and management (option 2), or
3. Advanced energy systems (option 3).

All students are expected to complete the following requirements:

Code	Title	Hours
MIME 5980	Special Topics (Energy sources, applications and economics)	
Select two of the following law/business/management courses:		6
LAWM 5000	Law And The Legal System	
BLAW 6100	Business, Government And Society	
MGMT 6100	Leading Through Ethical Decision-Making	
Select at least one of the following engineering courses:		3
CIVE 5690	Sustainability Engineering	
MIME 5820	Sustainability Analysis and Design	
Select one the following engineering course if in option 1:		3
EECS 5240	Power Systems Operation	

EECS 5480 Power Electronics 1

EECS 5460 Power Systems Management

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 accomplished 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.