

ENERGY ENGINEERING, GRADUATE CERTIFICATE

With the rapid dwindling of energy resources, there is a great demand for workers in various fields to keep themselves abreast of the latest technology in solving and planning for the energy shortage and efficient use of energy. This interdisciplinary Certificate in Energy Engineering Program is open to post-baccalaureate students who are interested in continuing education for career development or gaining experience in the energy area. In particular, the Program will provide basic knowledge on the design of electrical and mechanical devices and systems and yet has adequate flexibility for students to focus on certain areas in energy according to their own discretion in advanced courses.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (<http://uwm.edu/graduateschool/program-deadlines/>) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (<https://uwm.edu/onestop/dates-and-deadlines/>).

Admission

Students must have a baccalaureate degree. A minimum 2.75 cumulative undergraduate grade point average is required.

Students must submit a reason statement explaining reasons for graduate study, specific interests, and background.

Application

- Students wishing to obtain this certificate must declare their intention by applying to the program office or director.
- All graduate certificate applicants—even those already enrolled in a UWM graduate program—must apply to the Graduate School (<https://uwm.edu/applygrad/>).
- Graduate degree and previously admitted graduate non-degree students who decide to pursue a certificate program must submit the application before completing 6 credits in the certificate sequence.
- Applicants must possess a baccalaureate degree and have a minimum 2.75 cumulative undergraduate grade point average to be admitted into a certificate program.

Credits and Courses

To obtain the certificate, students are required to complete a minimum of 15 credits from the lists of Groups A and B courses of which at least 12 credits must be taken at UWM.

Students must complete at least two courses from Group A to obtain an Energy Engineering Certificate. Additional electives can be chosen from Group B. At least 6 credits must be 700-level or above. A maximum of 3 credits of independent study may be applied toward the certificate.

Code	Title	Credits
Group A Credits		
ELECENG 471	Electric Power Systems	3
ELECENG 572	Power Electronics	3
ELECENG 574	Intermediate Control Systems	3

ELECENG 575	Analysis of Electric Machines and Motor Drives	3
MECHENG 432	Internal Combustion Engines	3
MECHENG 434	Air Conditioning System Design	3
MECHENG 435	Power Plant Theory and Design	3
MECHENG 436	Solar Engineering	3
ELECENG 781	Advanced Synchronous Machinery	3
ELECENG 872	Computer Analysis of Electric Power Systems	3
ELECENG 890	Special Topics: (Advanced Power Electronics)	3
ELECENG 890	Special Topics: (Automotive Power Systems (New Course))	3
ELECENG 890	Special Topics: (Renewable Energy Systems (New Course))	3
ELECENG 999	Advanced Independent Study	1-3
MECHENG 702	Advanced Engineering Thermodynamics	3
MECHENG 703	Principles of Combustion	3
MECHENG 710	Advanced Transport Processes	2
MECHENG 711	Thermal Radiation and Conduction	3
MECHENG 712	Convection Heat and Mass Transfer	3
MECHENG 714	Energy Transport in Microscale Systems	3
MECHENG 721	Fundamentals of Fluid Flow	3
MECHENG 722	Advanced Fluid Mechanics	3
MECHENG 723	Computational Fluid Dynamics and Heat Transfer	3
MECHENG 725	Fluid Power and Turbomachinery	2
MECHENG 999	Advanced Independent Study	1-3

Additional Requirements

Transfer Credit

No more than 20% of the required credits may be transferred from energy-related, graduate-level coursework taken at an institution other than UWM. These courses are subject to Graduate School transfer policy and must be approved by the director of the certificate program.

Grade Point Average Requirement

A minimum cumulative 3.00 grade point average in certificate courses taken at UWM is required.

Articulation with Degree Programs

- Credits and courses required for a certificate may double count toward meeting UWM graduate degree requirements subject to the following restrictions:
 - Degree programs must approve the courses from certificates that can double count toward the degree.
 - All credits taken in completion of certificate requirements may count towards a UWM graduate degree as long as they do not contribute more than 90% of the total credits needed to obtain the degree. (Note: Students in PhD programs must still complete the minimum residency requirements)
 - Certificate courses used toward meeting degree requirements must be completed within the time limit for transfer credit.

2. Courses completed for a degree may be counted toward a subsequent certificate, subject to all certificate policy requirements.
3. A course may count toward no more than one certificate and one degree.
4. Students may not earn a certificate subsequent to a concentration in the same area.

Time Limit

Certificate program time limits shall be established as follows:

- 18 or fewer credits/Three years from initial enrollment in the certificate sequence.
- 19 or more credits/Four years from initial enrollment in the certificate sequence.

For certificates that are designed as add-ons to degree programs and are awarded concurrent with the degree, the time limit shall be the same as that of the degree program.