

ELECTRICAL ENGINEERING POST-BACCALAUREATE CREDIT CERTIFICATE PROGRAM

Person-in-Charge	Robert A. Gray
Program Code	EE
Campus(es)	World Campus

The Electrical Engineering Post-Baccalaureate Credit Certificate provides working professionals specific electrical engineering subject knowledge or an additional breadth of electrical engineering knowledge that can support career goals or needs. This certificate provides flexibility for students to choose online technical electives that best suit their needs, without stipulation of required courses. Nine (9) electrical engineering course credit hours with a 'C' or better are required. All completed electrical engineering certificate courses with a grade of 'B' or better can be applied to the Electrical Engineering M.Eng. degree program offered through World Campus, subject to restrictions outlined in GCAC-309 Transfer Credit (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-309-transfer-credit/>). Certificate students who wish to have certificate courses applied towards a graduate degree in Electrical Engineering must apply and be admitted to that degree program. Admission to the Electrical Engineering graduate degree program is a separate step and is not guaranteed. Students who earn the electrical engineering certificate with an overall GPA of 3.0 are encouraged to apply for the Electrical Engineering M.Eng. program offered through World Campus and will not need to submit letters of reference with their application. Electrical engineering technical elective subjects include: power systems, electronic communication systems, control systems and signal processing.

Effective Semester: Fall 2021
Expiration Semester: Fall 2026

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>). International applicants may be required to satisfy an English proficiency requirement; see GCAC-305 Admission Requirements for International Students (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/>) for more information.

It is expected that students have an ABET accredited Bachelor of Science degree in Electrical Engineering (BSEE) with a GPA of at least 3.0 in the final two years of school. Admission decisions will also be based on relevant transcripts, personal statement, work experience, and recommendation letters.

Those applying for admission in the Electrical Engineering certificate program without an ABET accredited Bachelor of Science in electrical engineering (BSEE) degree may be accepted with a strong background in mathematics and evidence that they meet the prerequisites to selected

certificate courses. Note: The online electrical engineering certificate does not offer online prerequisite courses.

Prerequisite math courses for students who have not earned a Bachelor of Science in Electrical Engineering degree are: Calculus I, Calculus II, Calculus III (Multivariate calculus), Differential Equations, Complex Numbers and Probability/Statistics. Evidence to meet certificate prerequisite courses may include: Electromagnetics, Electrical Communications, Control System Design, Digital Signal Processing, Power/Machines, Signal and Systems (Fourier and Laplace transforms), Physics (Calculus based), Computer Programming (C,C++ or equivalent), Electrical Circuits (Calculus based) and Electronic Circuits. It is also very helpful to have some experience in MATLAB programming. All applicants are expected to have earned a junior/senior grade point average of 3.0 or higher.

Note: Technology degrees in electrical engineering, (for example, BSEET) are generally not an equivalent BSEE degree and therefore not accepted; applicants with a technology degree must meet all deficiency requirements and prerequisites to be considered.

Certificate Requirements

Requirements listed here are in addition to requirements listed in Graduate Council policy GCAC-212 Postbaccalaureate Credit Certificate Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-212-postbaccalaureate-credit-certificate-programs/>).

Minimum credits is nine (9). Minimum overall GPA is 2.0. Time limitation is five (5) years.

Code	Title	Credits
Required Courses		
Select 9 credits from the following:		9
EE 460	Communication Systems II	
EE 480	Linear Systems: Time Domain and Transform Analysis	
EE 488	Power Systems Analysis I	
EE 531	Engineering Electromagnetics	
EE 553	Topics in Digital Signal Processing	
EE 560	Probability, Random Variables, and Stochastic Processes	
EE 580	Linear Control Systems	
EE 581	Optimal Control	
EE 588	Power System Control and Operation	
EE 589	Smart Grid Control and Dynamics	
Total Credits		9

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Learning Outcomes

1. **KNOWLEDGE.** Graduates will be able to demonstrate understanding of principles in electrical engineering knowledge in either a broad sense of electrical engineering topics or focused subject area.
2. **CRITICAL THINKING.** Graduates will be able to conceptualize, evaluate and formulate electrical engineering problems, as well as perform the analyses required for problem defining and solving.
3. **PROBLEM SOLVING.** Graduates will be able to apply advanced knowledge, techniques, skills and use software simulation to solve electrical engineering problems.
4. **COMMUNICATE.** Graduates will be able to effectively communicate, using Penn State online learning resources, their solutions to electrical engineering problems, including the use of software simulation tools such as MATLAB.
5. **PROFESSIONALISM.** Graduates will be able to demonstrate professionalism, including the accomplishment of timely assignments and professional communication.

Contact

Campus	World Campus
Graduate Program Head	Vahid Motevalli
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Robert A. Gray
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Program Website	View (https:// www.worldcampus.psu.edu/ degrees-and-certificates/penn- state-online-electrical-engineering- certificate/overview/)