

University of Washington Electrical Engineering Professional Master's Program (PMP)

www.ee.washington.edu/admissions/pmp

The Professional Master's Program (PMP) in Electrical Engineering serves the growing need for engineers and scientists in the Puget Sound region to earn an advanced degree. It offers an exceptional course structure for professionals seeking to expand their career opportunities in the field of electrical engineering.

With a stellar curriculum equivalent to the daytime master's program, the PMP offers a wide range of courses covering areas such as controls, electromagnetics, signal processing, and wireless communications. Courses are taught by UW EE faculty members, and are scheduled in the evening so that students generally need come to campus only once per week. The PMP leads to the same degree (Master of Science in Electrical Engineering) offered through the daytime program.

Typical quarterly enrollment for PMP students (during Autumn, Winter, and Spring quarters) includes one 4-credit class and a 1 credit seminar (EE 500), for a total of 5 credits during any given quarter.

The PMP is designed to allow students to earn the MSEE on a part-time basis over 9 academic quarters (Autumn, Winter, Spring) over three calendar years, excluding optional Summer enrollment.

The curriculum includes courses in the following subject areas:

- Controls
- Electromagnetics (EM)
- Signal, Image, and Video Processing (SIP)
- Wireless Communications (COMM)

Students may choose courses from any combination of subject areas to complete the minimum credits required for the degree. Areas are subject to change.

The program requires 45 credits for completion of degree requirements:

- 36 credits from completion of nine regular courses (at 4 credits each)
- 9 credits earned cumulatively (at 1 credit per quarter completed) as part of a quarterly seminar series, EE 500
- Optional Summer quarter

Admission Information for the Professional Master's Program

Admission into the EE PMP is offered once per year in Autumn quarter, with a priority deadline of July 1st. Applications received after the priority deadline will be considered on a space-available basis.

Criteria for admission include:

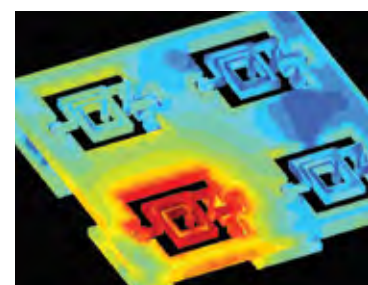
1. Online UW Graduate School Application
2. Application fee (\$65, paid online)
3. Unofficial Transcripts (from all post-secondary institutions)
4. Statement of Purpose
 - Summarize your academic and professional background and goals, and your reasons for applying to the PMP
 - Mention any particular strengths that may not appear in other application materials, and explain any areas of weakness that may be of concern
 - You should also address your anticipated ability to meet the demands of an evening degree program while working and balancing your other demands/commitments (i.e. family, etc.)
5. Letters of Recommendation (2 required)
 - Applicants will be asked to provide the current email addresses of recommenders who will then be notified via email to provide their recommendation online. As a part of the process recommenders will also be asked to rate the applicant in areas such as creativity, independent thinking, ability to work as a team, and verbal and written proficiency
6. Resume or CV
7. English language proficiency, where applicable.
 - Refer to the minimum English requirements at Graduate School Memorandum No.8
 - Applicants whose native language is not English are required to take the TOEFL, regardless of citizenship. Thus, U.S. citizens whose native language is not English are required to submit valid TOEFL scores.
8. The GRE is NOT required to apply to the EE PMP.

***All materials (fees, transcripts, resumes, letters, scores, etc.) are submitted online via the Graduate School Application process. The EE Department will not accept paper materials.*

Tuition & Fees

Professional Master's Program (PMP) tuition & fees are charged per credit and are subject to change from year to year. The total cost of the program comes to approximately \$33,000 (spread over the normal three years to complete the degree.) **Tuition rates may change slightly, and are provided solely for planning purposes for prospective students.**

Students in all fee-based programs, including this degree, are ineligible for the State employee Tuition Exemption Program.



Sample Courses in the PMP Curriculum:

General Fundamentals

EE 505 Probability and Random Processes (4)

Foundations for the engineering analysis of random processes: set theoretic fundamentals, basic axioms of probability models, conditional probabilities and independence, discrete and continuous random variables, multiple random variables, sequences of random variables, limit theorems, models of stochastic processes, noise, stationary and ergodicity, Gaussian processes, power spectral densities.

Electromagnetics

EE 467 Antennas: Analysis and Design (4)

Fundamentals of antennas, analysis, synthesis and computer-aided design, and applications in communications, remote sensing, and radars. Radiation pattern, directivity, impedance, wire antennas, arrays, numerical methods for analysis, horn antennas, microstrip antennas, and reflector antennas.

EE 501 Radar Remote Sensing (3)

General introduction to radar remote sensing of geophysical targets. Fundamentals of radar systems, range-time diagram, ambiguity function, pulse compression, spectrum estimation for underspread and overspread targets; multi-antenna correlations, interferometry, closure phases; maximum entropy source imaging; Aperture Synthesis (SAR and ISAR).

EE 571 High Frequency Circuits and Antennas: Computation of Fields and Waves (4)

Planar microstrip structures are high frequency circuits and antennas used in communication, aerospace and computer industries. Examines the computation of fields and waves in such structures. How to calculate circuit parameters and radiation characteristics. Structures studied include microstrip lines, coupled lines, antennas, resonators, and discontinuities. Pre-req: EE 572

EE 572 Electromagnetic Theory and Applications I (4)

Electromagnetic waves in layered media; complex waves, leaky and slow waves, waves in periodic structures, optical fibers, ionosphere and other guiding structures; transients and dispersive media; waveguides and cavities; beam waves; eigenfunctions and eigenvalues.

EE 573 Electromagnetic Computations and Applications I (4)

Fundamentals of computational electromagnetics, method of moments, integral equations, basis functions, iterative methods, periodic structures and Green's Functions finite difference time domain method, Yee's lattice, absorbing boundary conditions, variational principles, and finite element method. Applications in antennas, waveguides, and scattering problems. Pre-req: EE 572

EE 579 Advanced Topics in Electromagnetics, Optics, and Acoustics (4)

Topics include "Microwave and RF Devices and Systems" - Expose students to microwave and RF circuit analysis and design. Both passive and active devices and circuits will be discussed. Students will also learn microwave CAD software and measurement techniques.

Signal, Image, and Video Processing

EE 518 Digital Signal Processing (4)

Digital representation of analog signals. Frequency domain and Z-transforms of digital signals and systems design of digital systems; IIR and FIR filter design techniques, fast Fourier transform algorithms. Sources of error in digital systems. Analysis of noise in digital systems.

EE 586 Digital Video Coding Systems (4)

Introduction to digital video coding algorithms and systems. Theoretical and practical aspects of important topics on digital video coding algorithms, motion estimation, video coding standards, systems issues, and visual communications.

“ So far I have been very impressed with the quality of the courses and the caliber of the faculty in the UW EE department, and I especially appreciate the opportunity to pursue specific concentrations such as electromagnetics and signal, image, and video processing. ”

— Scott Wisdom
PMP student



EE 587 Multimedia Compression and Networking (4)

Addresses four major components of multimedia: 1) data compression of multimedia (e.g., speech, audio, image, and video); 2) quality of service (QoS) issues for data transmission over IP; 3) multimedia streaming and conferencing applications; and 4) intellectual property management and protection (IPMP) of multimedia contents. Co-req: EE 518

Wireless Communications

EE 506 Fundamentals of Wireless Communication (4)

Reviews fundamentals of wireless communications including signal and noise theory, modulation techniques, fading channels, error analysis, synchronization, and coding. Pre-req: EE 505

EE 565 Computer-Communication Networks I (4)

Network architectures and protocols; layered model; reliable transmission protocols at the data control layer; Transmission Control Protocols (TCP); routing algorithms; performance modeling, and analysis of packet-switched networks. Multi-access. Projects involving routing and multi-access principles. Pre-req: EE 505

EE 567 Mobile Radio Networks (4)

Wireless communication networks, including digital broadcasting, wireless LAN, wireless access networks and ultra wide band (UWB); OFDM modem design; MAC and RLP; TCP/UDP over wireless; cross-layer protocol optimization; radio network planning. Pre-req: EE 506 and 565

Controls

EE 546 Advanced Topics in Control System Theory (4)

Topics of current interest in control system theory for graduate students with adequate preparation in linear and nonlinear system theory. Prerequisite: permission of instructor.

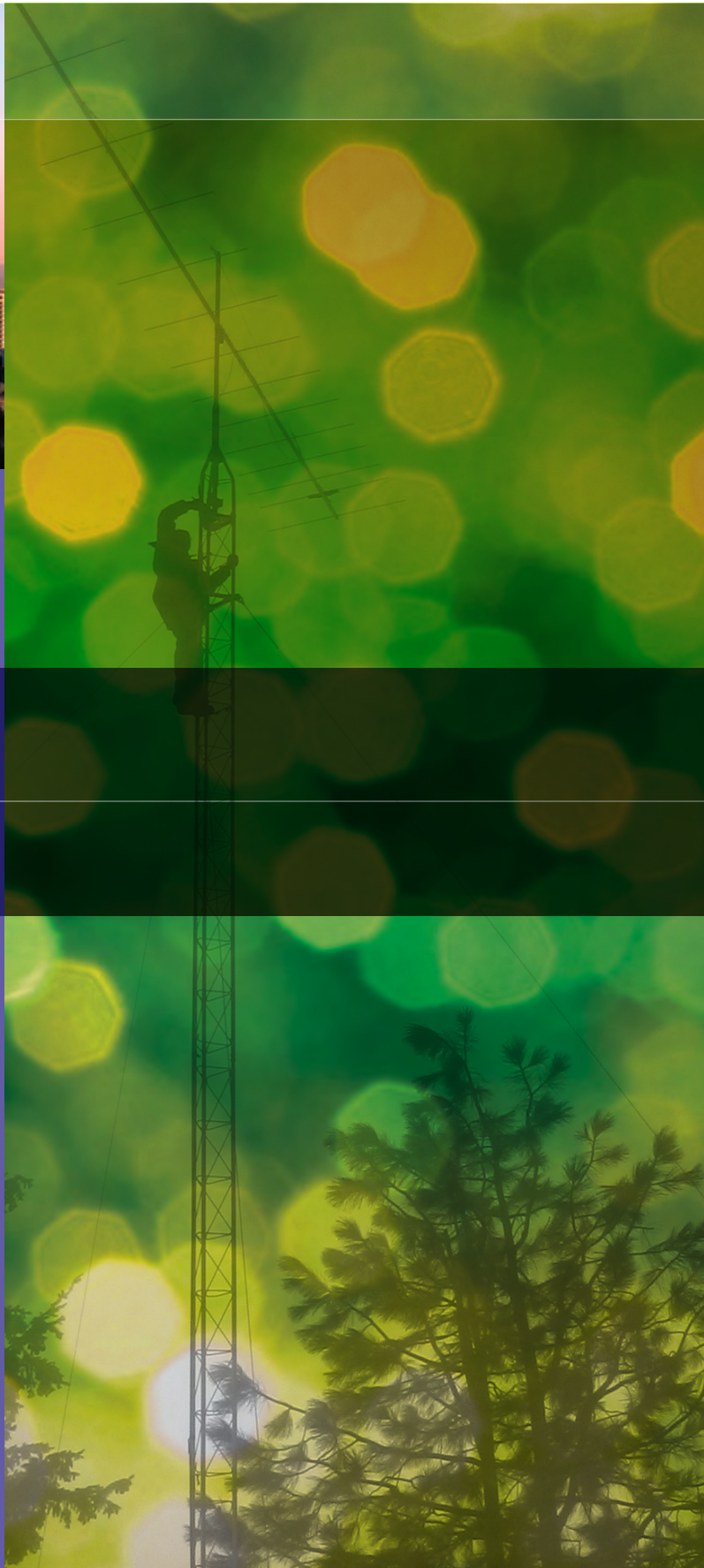
EE 581 Digital Control (3)

Sampled-data systems, and z-transform. Frequency domain properties. Sampling D/A and A/D conversion. Controller design via discrete-time equivalents, direct methods, state feedback and observers. Quantization effects. LQR control and introduction to LQG optimal control.

MEMS

EE 502 Introduction to Microelectro Mechanical Systems (4)

Theoretical and practical aspects in design, analysis, and fabrication of MEMS devices. Fabrication processes, including bulk and surface micromachining. MEMS design and layout. MEMS CAD tools. Mechanical and electrical design. Applications such as micro sensors and actuators, or chemical and thermal transducers, recent advances.



What Companies do PMP Students Come From?

Agilent	Kimberly-Clark
Avtech	Microsoft
Boeing	Motorola
Cypress Semiconductor	Panasonic Avionics
Fluke	T-Mobile
Intel	...and many others
Intermec	

Contact Us!

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