SOFTWARE ENGINEERING

Graduate Program Head: Colin Neill
Program Code: SWENG
Campus(es): Great Valley (M.S.E.)
World Campus (M.S.E.)
Degrees Conferred: Master of Software Engineering (M.S.E.)
The Graduate Faculty: View [link]

This professional master's degree program, available at Penn State Great Valley, focuses on various aspects of software engineering. The primary goal of the program is to prepare students to develop the next generation of software products and services for consumers, industry, and government. The curriculum includes comprehensive, intensive coverage of modern software concepts and techniques, and emphasizes a holistic approach encompassing financial, legal, and presales issues; technical concepts; software design techniques; methods; and project management.

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission [link]. Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions [link]. The Master of Software Engineering (M.S.E.) program is designed for students with technical backgrounds. Admission will be granted if the applicant has the necessary program prerequisites and a faculty member in the student's interest area agrees to serve as adviser. Applicants lacking in a modern programming language can meet that requirement by scheduling the 400-level software engineering studio. Scores from the Graduate Record Examinations (GRE) are not an entrance requirement unless the applicant has a junior/senior grade-point average below 3.00 (on a 4.00 scale).

Students with a 3.00 junior/senior average in an appropriate technical degree program will be considered for admission. The best-qualified applicants will be accepted. Exceptions to the minimum 3.00 grade-point average may be made for students with special backgrounds, abilities, and interests.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students [link] for more information.

Degree Requirements

Master of Software Engineering (M.S.E.)

Requirements listed here in addition to Graduate Council policies listed under GCAC-700 Professional Degree Requirements [link].

The program is constituted by four, 9-credit modules of study. Each module is designed for in-depth coverage of a specific area of study (e.g., modern software methods, algorithms, information science). Two of the modules are required; one centers on professional, skill-based topics such as software project management or business communications, and includes the option to select a professional paper or the advanced software studio. The second required module comprises 9 credits of advanced software engineering course work. Graduate instruction is under the direction of a faculty committee.

All students must complete two required 9-credit core modules, for a total core curriculum of 18 credits, and two other 9-credit modules. At least 15 credits of selected courses must be at the 500 level.

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding [link] of The Graduate School’s website. Students on graduate assistantships must adhere to the course load limits [link] set by The Graduate School.

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the Tuition and Financial Aid section [link] of the World Campus website for more information.

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.

Software Engineering (SWENG) Course List [link]

Learning Outcomes

1. KNOW. Graduates will be able to demonstrate mastery of concepts and methods for modeling, designing, developing and testing software solutions using legacy and contemporary environments.

2. CRITICAL THINKING. Graduates will be able to critically and creatively plan and manage development of software intensive systems using project management methods and tools.

3. PROBLEM SOLVING. Graduates will be able to demonstrate proficiency in exploring the trade space within a given set of internal and external constraints for a system under development.

4. COMMUNICATE. Graduates will be able to effectively communicate their ideas within their organization, to other practicing professionals and the general public.

5. TEAMWORK. Graduates will be able to work collaboratively within and with project teams including those that are geographically distributed.
Contact

Campus
Great Valley

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Program Website
View (http://greatvalley.psu.edu/academics/masters-degrees/software-engineering)

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