

Software Engineering, M.S.

Software engineering is the application of a systematic, disciplined, quantifiable approach to development, operation, and maintenance of software; that is, the application of engineering to software. It is an interdisciplinary field of study that bridges the boundaries of computer science, engineering, mathematics, and behavioral science.

The M.S. Software Engineering (MSSE) program at UC Irvine is a heavily research-oriented program aimed at students with a computer science (or related) bachelor's degree, who may or may not have been out in the workforce already, and who seek to build a strong background in software engineering. In particular, this program is aimed toward students who seek to develop a deeper understanding of the processes, tools, and techniques involved in the creation of dependable, large-scale software systems. While not all M.S. students will choose to do a Ph.D. following their Master's, the research focus of this program makes it ideal for those considering a Ph.D. (such as our Ph.D. Software Engineering (<https://www.informatics.uci.edu/grad/phd-software-engineering/>) program).

For students interested in pursuing a professionally-oriented degree, working directly with industry mentors and clients on software engineering projects, and looking to find a position or advance their career within a corporate context, we encourage you to consider our MSWE (<https://www.informatics.uci.edu/grad/mswe/>) program.

The MSSE program is designed around a set of core courses that introduces the fundamentals of software engineering, followed by a broader range of courses through which students can choose to focus their learning. Students could choose to augment their core with more computer science-oriented courses (e.g., network and distributed systems security, next generation search systems), data science courses (e.g., machine learning, data mining), end-user oriented courses (e.g., user interface design and evaluation, ubiquitous computing and interaction), or advanced software engineering courses (e.g., software architecture, software analysis and testing).

Throughout, students are exposed to the theory, tools, methods, approaches and practicalities of software engineering. Many of the courses include project work, often performed in teams, and frequently culminating in a system, prototype or conceptual design.

The students are required to complete and defend an M.S. thesis under the direction of a faculty advisor. For at least three quarters, the student will join a research group, contribute to a research project, and write a thesis summarizing the outcome of their research. With no fewer than seven faculty members running software engineering research groups, you will have a diverse range of projects from which to choose. The M.S. thesis provides an excellent experience for students interested in continuing toward a Ph.D. program or to pursue a career as a researcher in corporate or government laboratories.

For additional information about this degree program, please see: <https://www.informatics.uci.edu/grad/ms-software-engineering/>

Course Requirements

A. Complete

SWE 211	Software Engineering
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B. Complete five elective courses ¹

C. Complete at least three quarters of individual study and/or thesis supervision courses

D. Select additional courses in order to fulfill 48 units ²

¹ All five elective courses must be regular, 4-unit courses from the School of Information and Computer Sciences. At least three of the elective courses should be from the SWE 2XX series. Individual study, thesis supervision, and seminars do not qualify as electives.

² The selection of courses should form a coherent educational plan that is approved by the student's faculty advisor.

Additionally, students are expected to attend at least 20 talks from within the several seminar series in ICS. Attendance bears no course credit, but it is required for advancement to candidacy. The student's faculty advisor is responsible for ensuring this requirement is met.

Capstone Requirement

Thesis: Students must take and pass the Research Assessment examination. Additionally, students are required to defend their thesis in a public exam according to UCI Senate Policy. This requirement must be completed by the end of the second year.

Restriction

The M.S. will not be awarded to students who currently hold a M.S. in Software Engineering or a related field from the same or another university.

Requirements Beyond Graduate Division Minimum Requirements

All M.S. students are expected to maintain a minimum GPA of 3.0 throughout the program. Failure to maintain this minimum will result in a recommendation that the student be disqualified. In addition, no grade lower than a B is counted toward satisfying any course requirements.