

# SOFTWARE ENGINEERING (SOFTWARE)

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**SOFTWARE 2730 Introduction to Software Engineering 3 Credits**

An introduction to software engineering principles, including discussions of development methodologies, requirements analysis, project planning, software design, software construction, software management, software quality, and CASE tools. Students gain experience, via a team project, in the life-cycle development of software systems.

**Components:** Class

**Prereqs/Coreqs:** P. COMPUTER 2430

**SOFTWARE 3020 Advanced Software Engineering Tools 1 Credit**

Hands-on software-engineering laboratory experience with popular tools such as distributed version control systems, Continuous Integration / Continuous Delivery (CI/CD), and DevOps.

**Components:** Laboratory

**Prereqs/Coreqs:** P. C- or better in SOFTWARE 2730

**SOFTWARE 3330 Intermediate Software Engineering 3 Credits**

A more detailed discussion of several software engineering topics included in previous courses including requirements engineering, software modeling, user-interface design, development processes and process improvement. Moderate size GUI-based group project.

**Components:** Class

**Prereqs/Coreqs:** P. "C-" or better in SOFTWARE 2730

**SOFTWARE 3430 Object Oriented Analysis and Design 3 Credits**

Requirements engineering, analysis, and specification using the object-oriented paradigm. Object-oriented architectural and detailed design. Use of an OOAD modeling language such as UML. Investigation of OOAD patterns. Moderate size, group project.

**Components:** Class

**Prereqs/Coreqs:** P. "C-" or better in SOFTWARE 2730

**SOFTWARE 3730 Software Quality 3 Credits**

Study of the topics related to producing quality software, including software quality assurance, quality metrics, configuration management, verification validation, reviews, inspections, audits, and software process improvement models. Individual and team projects.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P. C- or better in SOFTWARE 2730

**SOFTWARE 3860 Software Maintenance and Reengineering 3 Credits**

Study of the topics related to maintaining large-scale software systems. Study of software engineering topics such as estimation, software quality assurance, metrics, configuration management, verification validation, inspections, and personal and team software process as they relate to software maintenance projects. Coverage of traditional analysis and design methods such as structured analysis and design. Students gain experience via semester-long, team-based project(s) in software maintenance and reengineering.

**Components:** Class

**Prereqs/Coreqs:** P. COMPUTER 2630, SOFTWARE 2730 and SOFTWARE 3430

**SOFTWARE 3950 Software Engineering Cooperative Education 2 Credits**

Work experience in industry under the direction of the College of Engineering, Mathematics and Science Cooperative Education and Internship Program. During co-op the student is expected to be away from his/her studies at UW-Platteville and work for an industry for a semester and summer. Credits do not fulfill graduation requirements.

**Components:** Field Studies

**SOFTWARE 3970 Software Engineering Internship 1 Credit**

Work experience in industry under the direction of the College of Engineering, Mathematics and Science Cooperative Education and Internship Program. NOTE: This program is separate and distinct from the cooperative education program and is principally designed to cover the summer work experience. Internship is designed to provide experiential learning experience to the student during the summer period. Credits do not fulfill graduation requirements.

**Components:** Field Studies

**Prereqs/Coreqs:** P. Junior standing

**SOFTWARE 4110 Software Engineering Seminar 1 Credit**

The course consists of lectures/discussions presented by both software engineering faculty and students enrolled in the class.

**Components:** Seminar

**Prereqs/Coreqs:** P. Junior/senior standing

**SOFTWARE 4130 Real-Time Embedded Systems Programming 3 Credits**

An exploration of programming techniques and constructs used to develop reliable software systems capable of responding in real time to environmental changes. An overview of the platforms, tools, and processes used in developing software for embedded systems. Hands-on lab projects experimenting with real-time embedded systems programming details.

**Components:** Discussion, Class, Laboratory

**Prereqs/Coreqs:** P: C- or better in COMPUTER 2630 and COMPUTER 3230 and SOFTWARE 3430; P or C: COMPENG 3780

**SOFTWARE 4330 Software Engineering Project I 3 Credits**

Emphasis in applying software engineering knowledge learned in this course and previous courses to a large, team-based, capstone project that spans two semesters. In-depth study of several software engineering topics introduced in earlier courses, such as agile development; computer aided software engineering tools; analysis and design methods; and risk management.

**Components:** Laboratory, Class

**Prereqs/Coreqs:** P: "C-" or better in SOFTWARE 3020, SOFTWARE 3330, and SOFTWARE 3430

**SOFTWARE 4730 Software Engineering Project II 3 Credits**

The project started in SOFTWARE 4330 is continued and carried to completion. In-depth study of several software engineering topics introduced in earlier courses, such as agile development, computer aided software engineering tools, review, testing and maintenance. The course will also introduce current research issues in software engineering.

**Components:** Discussion, Laboratory, Class

**Prereqs/Coreqs:** P: "C-" or better in SOFTWARE 3730 and SOFTWARE 4330

**SOFTWARE 4980 Current Topics in Software Engineering 1-4 Credits**

In-depth study of a current topic of interest to the software engineering profession. The topic to be covered will be identified in the course title.

**Components:** Class

**SOFTWARE 4990 Independent Study 1-3 Credits**

Advanced study in area of specialization selected by student and approved by faculty member.

**Components:** Independent Study