Department of Computer Science

Master of Science
in
Software Engineering

Handbook

Fall 2009

California State University, Fullerton
Fullerton, CA 92834-6870
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1. MSE Program Design and Description

The Master of Science in Software Engineering consists of 30-unit coursework (10 courses) to be completed over a 22-month-long, year-round program with students taking two courses per semester. Students will be grouped in cohorts that follow the same class schedule throughout the program. Because of the intensive nature of online learning, students will be expected to spend 6-10 hours on homework per week for each class. This is in addition to participation in the online lectures, discussions, chats and regular course readings. The courses are paired both theoretically and sequentially with learning goals and assessments integrated throughout the entire program. The culminating experience of the practicum and project will be linked together to provide a practical application setting with a supporting theoretical and research framework.

In addition to the course requirements, students will be required to complete a Orientation Seminar prior to the beginning of the program. Students will also participate in a Midpoint Symposium to authenticate and assess their progress in the program.

1.1 Curriculum

Attendance at the initial Orientation.

Attendance at the Midpoint Symposium.

Core courses (12 units total)
- CPSC 541 - Systems and Software Standards and Requirements (3)
- CPSC 544 - Software Process Definition (3)
- CPSC 543 - Software Maintenance (3)
- CPSC 545 - Software Design and Architecture (3)

Advanced Software Process Evaluation Courses (6 units total)
- CPSC 542 - Software Verification and Validation (3)
- CPSC 547 - Software Measurement (3)

Advanced Software Engineering Management Courses (6 units total)
- CPSC 546 - Software Project Management (3)
- CPSC 548 – Professional, Ethical and Legal Issues for Software Engineers (3)

Capstone Experience (6 units)
- CPSC 597* - Graduate Project in Computer Science (6)
  (CPSC 597 will be offered in two 3-unit segments)

1.2 Timeframe Of Courses

Late August : Orientation Seminar
Fall semester, late August – December : CPSC 541; CPSC 544
Spring semester, late January – May : CPSC 545; CPSC 546
Summer session, June – August : CPSC 548; CPSC 597I
Late August : Midpoint Symposium
Fall semester, September – December: CPSC 542; CPSC 547 (3 units)
Spring semester, January – May 2010: CPSC 543; CPSC 597 II (3 units)

1.3 Class Completion Schedule

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<td>CPSC 597II</td>
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1.4 Online Course Format, Structure and Interaction

The MSE program will be taught using the campus Blackboard courseware licensed by the Faculty Development Center. Each course will be conducted in a primarily asynchronous mode, broken into discrete blocks of time, e.g., one week. Examples of some of the materials and interactions that students might experience each week might include the following: required readings from an electronic text, electronic library reserve material, instructor’s “lecture” and related lecture notes, a lecture written by an expert in the field, interactive exercises to further enhance understanding of the subject matter, assignments and response papers sent via e-mail, electronic discussions with the professor, other students and the entire class. Depending on the topic, lecture material may be presented to students in the form of a PowerPoint presentation complete with audio and video clips, screen shots, various interactive exercises, charts, graphs, figures that will "pop up" when clicked, or short actual segments of the instructor lecturing using audio/video streaming technologies.

Each week’s assignments generally will require students to synthesize and integrate the week’s material both on their own and in cooperative learning situations. Throughout the course, students are expected to keep pace with assignments and deliver assignments on schedule to the instructor for review and evaluation. Students also will be told that it will be necessary for them to check their course e-mail and bulletin boards at least every other day for messages and updates from professors and fellow classmates.

Each student is required to participate meaningfully in primarily asynchronous online discussions, which occur in weekly cyber chat classrooms. These cyber classrooms are places for students to discuss the readings, lecture and assignments and to engage the professor and fellow students in discussions of specific course-related issues. The cyber classrooms will be created so that all responses will remain accessible to participants during the entire course (i.e., students will be able to read all of what has been contributed).
In sum, students in this program will have ample opportunity to work regularly with the instructor one-on-one, as well as with fellow classmates individually and in groups.

1.5 Orientation and Midpoint Seminar

In addition to the course requirements, students will be required to complete a Orientation prior to the beginning of the program. Students will also participate in a Midpoint Symposium to authenticate and assess their progress in the program.

Both the Orientation and the Midpoint Symposium will be conducted in a classroom setting. The students will either take part in the meeting or download and review the video from MSE website.

2. Program Policies

2.1 Program Continuation and Completion Requirements

Registration, attendance, and successful completion of the Orientation and Midpoint Seminars. If circumstances force a student to fall out of the original cohort schedule, the student will normally be permitted to continue in the program, but will default to the next cohort cycle, provided the student remains in good academic standing.

Accessibility Issues: Special accommodations for disabled students will be made on individual student, as needed basis in compliance with the CSUF Catalog online catalog at:

http://www.fullerton.edu/disabledservices/handbook/SupportiveServices.htm

For more information, contact the instructor and Program Coordinator.

2.2 Examinations, Evaluations and Academic Integrity

Students must complete all examinations by themselves and return them in time. Academic integrity of student work is supported by tracking student work via the electronic portfolio throughout the duration of the program.

2.3 Good Academic Standing, Probation, and Appeals

Continuous enrollment in the program is required. There is a five-year completion time limit for the degree. Approved leaves of absence are available for limited times and are excluded from the total time limit. For more information on the campus’ continuous enrollment requirement and leaves of absence, consult at:

http://www.fullerton.edu/graduate/policies.htm

A graduate student with a semester grade point average that falls below B (3.0) will be placed on academic probation. Students will be subject to disqualification after two semesters on probation and will be reviewed by the MSE Coordinator in consultation with the MSE Program Council for action by the Director of Graduate Studies. More information on graduate probation and disqualification can be found on the Graduate Studies website:

http://www.fullerton.edu/graduate/standards.htm

The regular student appeals process applies to students in the MSE program. More information on the academic appeals process can be found in the student handbook at:

http://www.fullerton.edu/deanofstudents/Judicial_Affairs/academic_appeals_policy.htm
2.4 Transfer and Prior Learning Credits

Per standing and general university policy, a maximum of nine (9) units of coursework may be transferred into the program from another university, providing the courses have been completed with a grade of “B” or better, are appropriate for the student’s concentration, and comply with the stipulations of the CSUF transfer credit policy. Final determination of the appropriateness of any course for application to this program will rest with the MSE Program Coordinator in consultation with the MSE Program Council and the Dean’s office. More information can be found at:

http://www.fullerton.edu/graduate/policies.htm#transfer

Students with significant prior learning experiences should produce detailed documentation of their experiences for review and possible substitution by the MSE Program Coordinator in consultation with the MSE Program Council for final approval from the Dean and the Office of Academic Programs.

2.5 Disabled Students

Special accommodations for disabled students will be made on an individual, as-needed basis in compliance with ADA and as specified in the CSUF Catalogue which can be found at:

http://www.fullerton.edu/disabledservices/handbook/SupportiveServices.htm

2.6 Information Provided to Students

The MSE program will provide a variety of materials and information to students both prior to admissions and after enrolment. Much of the information for prospective students can be obtained by visiting the MSE website:

http://mse.fullerton.edu

For example, this website will have information regarding the degree, the quality of the program, what to expect of a 100% online program, and a host of links to other important student information sites such as online catalogue and class schedule, bookstore, faculty and student email, student internet access, and placement, Disabled Student Center, international students and more. Students may also request information via the website. Once students enroll, the MSE Program Coordinator will send them material and information regularly both electronically and through the mail. He will also communicate with them by telephone as needed.

3. Outcomes and Assessment

3.1 Student Learning Objectives

The student learning objectives are incorporated into eight overarching program goals: implementation of software process, process assessment and appraisal, software process standards, legal and ethical issues literacy, critical thinking and problem solving, collaboration, research, and written communication. Each learning goal strand or theme is described below.

- **Implementation of Software Process** – ability to define and apply a software process to real-world problems.

- **Process Assessment/Appraisal** — the ability to analyze and estimate software process costs.
• **Software Standard Comprehension**—the ability to identify, analyze and apply software standards in software engineering practice.

• **Professional, Legal and Ethical Issues Literacy**—the ability to analyze, assess and interpret professional codes of ethics and regulatory documents pertaining to software engineering.

• **Critical Thinking and Problem Solving**—the ability to analyze, evaluate and synthesize information as well as generate and apply appropriate solutions to solve problems based on reasoned rationale.

• **Collaboration and teamwork**—the ability to work productively in team or collaborative settings to achieve common goals or purposes.

• **Research**—the ability to conduct, evaluate and synthesize research and apply theoretical ideas to practical settings.

• **Communication**—the ability to effectively present ideas in a logical framework in a variety of forms with proper language structure and mechanics.

Each course contains a multi-modal assessment methodology to document learning via projects, online demonstrations, discussion, and exams. Each learning goal is linked to specific course assignments and learning outcomes. The most common assessments are the individual and team-designed class projects, various prototype projects, online discussions, prototype demos, midterm and final exams.

The culminating experience includes research and a practicum grounded in the theoretical foundations defined in all study plan coursework. An electronic portfolio of culminating experience and preparatory coursework will be created by each student enrolled in the program. The portfolio will be reviewed at the midpoint symposium and evaluated by the Program Coordinator at the end of the program. The portfolio provides the evidence for the most comprehensive assessment of the program. Finally, the inclusion of the Orientation Seminar and the Midpoint Symposium ensures the authentication of student work and progress in the program linked to the eight learning goal strands.

### 3.2 Assessment Methods

Student learning objectives will be assessed as follows.

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<tr>
<th>Goals</th>
<th>Assessment Method</th>
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<td>Collaboration/team work</td>
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<td>Team project presentations</td>
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<td>Process Assessment &amp; Appraisal</td>
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### 4. Technology and Resources

#### 4.1 Blackboard

Students in the MSE program will use the Blackboard Learning System, which is designed to assist faculty and students in online instructional programs. Blackboard is a web-based environment in which students are able to access course materials and communicate with other students and faculty. General information concerning the Blackboard is available from [http://blackboard.fullerton.edu](http://blackboard.fullerton.edu) and includes useful information on how to use Blackboard, an FAQ document, and other information that you might find useful. For more information see Appendix A

#### 4.2 Contact Information

**MSE Program Coordinator**

Christopher T. Ryu, Ph.D. 657-278-7231

E-mail: tryu@fullerton.edu

**MSE Office**

657-278-5674

CS-108

Website: [http://mse.fullerton.edu](http://mse.fullerton.edu)  E-mail: mse@ecs.fullerton.edu
4.3 Study Plan

The Study Plan form is shown on the next page.
Department of Computer Science

Study Plan

Master of Science in Software Engineering

Name ___________________________ Student ID No. ______________ Date ___________
Address ___________________________ Home Phone: _____________________________
_________________________________ ZIP ______________ Work Phone: _____________________________

The following precategorization requirements have been met:
1. □ BA □ BS □ Other from ______________ Month/Year ___________
   Undergraduate major _____________________________
2. □ Minimum 2.5 GPA in last 60 semester units attempted.
3. Good standing at last college attended.
4. Prior IT-related work experience.
5. Satisfactory completion of CPSC 461 or equivalent work experience.
6. Submission of student questionnaire.
7. Technology requirements satisfied.
8. If International student, a TOEFL score of 550.
9. Writing Requirement has been met by CPSC 546

The following has been/will be met for continuation and completion of the program:
☐ Initial orientation
☐ Midpoint symposium

ALL STATE AND UNIVERSITY REQUIREMENTS ARE TO BE MET INCLUDING FIVE-YEAR LIMIT

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Total Units Required 30

CLASSIFIED STANDING recommended by committee (prerequisites met and Study Plan approved):
Members:
Faculty Adviser ___________________________ Date ________ Dept. adviser ___________________________ Date ________
Reviewed in Graduate Office ___________________________ Date ________
CLASSIFIED GRADUATE STANDING GRANTED ___________________________ Date ________

Associate Vice President, Academic Programs

PC 6/04 Rec’d Graduate Studies Office:: Copies Sent: