



**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

	Fall	Spring	Summer	Fall	Spring
CPSC 541	X				
CPSC 544	X				
CPSC 545		X			
CPSC 546		X			
CPSC 548			X		
CPSC 597I			X		
CPSC 542				X	
CPSC 547				X	
CPSC 543					X
CPSC 597II					X

### 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.

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## **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](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.

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## 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 team work**—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.

Goals	Assessment Method					
	Team project presentations	Team project report	Individual project presentation	Individual project report	Prototype demo	Software Process Workshop
Critical thinking / problem solving	542, 544, 547	542, 544, 547	541, 542, 543, 544, 545, 547	544, 597	541, 545	
Collaboration/team work	542, 544, 547	541, 542, 544				541, 542, 544, 546

<b>Goals</b>	Team project presentations	Team project report	Individual project presentation	Individual project report	Prototype demo	Software Process Workshop
Research	544, 545, 547		541, 542, 543, 544, 545, 547	544, 597	541, 545	541, 544, 547
Communication	544		541, 542, 543, 544, 545, 547	597		542, 546
Software Process Implementation	544		544, 597	544, 597		544
Process Assessment & Appraisal	541, 544, 547, 548	541, 544, 547, 548			597	544, 547
Software Standard Comprehension	541, 544	541, 544, 547				541, 544, 546
Legal and Ethical Issues Literacy	548	548		544, 548		

#### **Assessment Method**

<b>Goals</b>	Software Tool Evaluation	Project Management Practicum	Online Discussion	Research Paper	Case Study	Exams
Critical thinking & problem solving		546		541, 542, 543, 544, 545, 546, 547, 548		541, 542, 543, 544, 545, 546, 547, 548
Collaboration & team work		546	541, 542, 544, 547, 548			
Research	541, 542, 543, 545	546			541, 542, 543, 544, 545, 546, 547, 548	
Communication		546	541, 542, 544, 547, 548			541, 542, 543, 544, 545, 546, 547, 548



<b>Goals</b>	Software Tool Evaluation	Project Management Practicum	Online Discussion	Research Paper	Case Study	Exams
Software Process Implementation	544	544	544	597		544
Process Assessment/ Appraisal	544	544, 547				541, 544
Software Standard Comprehension	541	541, 544, 547				541, 544, 547
Legal and Ethical Issues Literacy					548	544, 548

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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> 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](mailto:tryu@fullerton.edu)

#### **MSE Office**

657-278-5674

CS-108

Website: <http://mse.fullerton.edu> E-mail: [mse@ecs.fullerton.edu](mailto:mse@ecs.fullerton.edu)

**Computer Science Department**

657-278-3700

CS-522

**CSUF Help Desk**

General technology questions

657-278-7777

Mon-Thu: 7:30 am – 10:30 pm

Fri: 7:30 am – 5:00 pm

Sat: 10:00 am – 5:00 pm

Sun: 12:00 pm – 7:00 pm

**Distance Education**

MSE courses and Blackboard questions

866-511-5991

Mon-Fri: 7:00 am – 9:00 pm

Online support desk request: Website: <http://distance-ed.fullerton.edu>

**Pollak Library**

Chat Reference – Live Help – Pilot Project

657-278-3284

Mon-Thu: 2:00 pm – 5:00 pm

Sun: 3:00 pm – 5:00 pm

See Library Guide for Distance Students on the Pollak Library Home Page:

<http://library.fullerton.edu>

Susan Tschabrun – References/Electronic Resources

657-278-7556 and E-mail: [stschabrun@fullerton.edu](mailto:stschabrun@fullerton.edu)

**Titan Shops/Bookstore**

online ordering

657-278-3418

Kimberley Ball

Website: <http://bookstore.fullerton.edu>

**4.3 Study Plan**

The Study Plan form is shown on the next page.

Name \_\_\_\_\_ Student ID No. \_\_\_\_\_ Date \_\_\_\_\_  
 Address \_\_\_\_\_ Home Phone: \_\_\_\_\_  
 \_\_\_\_\_ ZIP \_\_\_\_\_ Work Phone: \_\_\_\_\_

The following preclassification 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. Technoloav 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**

<i>Study Plan Requirements</i>	<i>Units</i>	<i>Grade</i>	<i>Sem/Yr</i>	<i>Ext.</i>	<i>Comments</i>
<b>REQUIRED CORE COURSES (12 Units)</b>					
CPSC 541 Systems Software Standards & Requirements	3				
CPSC 543 Software Maintenance	3				
CPSC 544 Software Process Definition	3				
CPSC 545 Software Design and Architecture	3				
<b>ADVANCED SOFTWARE PROCESS EVALUATION COURSES (6 units)</b>					
CPSC 542 Software Verification and Validation	3				
CPSC 547 Software Measurement	3				
<b>ADVANCED SOFTWARE ENGINEERING MANAGEMENT COURSES (6 units)</b>					
CPSC 546 Software Project Management	3				
CPSC 548 Professional, Ethical & Legal Issues	3				
<b>CAPSTONE EXPERIENCE (6 units)</b>					
CPSC 597 Graduate Project	3				
CPSC 597 Graduate Project	3				
<b>Total Units Required</b>	<b>30</b>				

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