**BOĞAZİÇİ UNIVERSITY**
**INSTITUTE FOR SCIENCES**
**DEPARTMENT OF COMPUTER ENGINEERING**

# Master of Science Program in Software Engineering

## About the Program

Today software systems constitute an essential part of computer systems which are used in many areas such as banking, insurance, business administration, telecommunications and the Internet, healthcare, automative, construction, land/air/marine transport, etc. Software Engineering, which exists since 1968, is a new branch of engineering and aims the design, production, and operation of software systems within the principles of engineering. Since computer and software systems are intensively and effectively used in every area of everyday life, Software Engineering is an interdisciplinary field of study and plays an important role in all disciplines.

The main purpose of **Software Engineering Master of Science Program** is to provide expert level education in the field of software engineering to those who have received an undergraduate degree from any four-year university program. Those who succeed in completing the program requirements will be granted the **"Master of Science Degree in Software Engineering".**

**Software Engineering Program** is designed to be completed in three semesters and could be completed in at most 6 semesters. Courses are in three groups, namely remedial courses, required courses and electives. Instead of a master's thesis, the program includes applied courses that encompass individual and group projects. Medium of instruction is English.

Courses take place between 19:00-21:50 on weekdays and between 10:00-12:50 and 14:00-16:50 on Saturdays in the Computer Engineering Building at the North Campus. Minimum load per semester is 9 credits. Courses are also offered in Summer Term.

**Software Engineering Program** exists since Fall 2003. As of April 2012, number of graduates is 138 and current number of students is 108.

### Who can attend?

- Graduates of four-year computer science and engineering programs who plan to specialize in software engineering,
- Graduates of any four year undergraduate program who plan to work in software industry,
- Those who already work in software industry with inadequate formal education,
- Those who plan to move their employment to software development and software project management,

could apply for the program.



## Curriculum

### Semester 1

| | |
|---|---|
| SWE 513 Principles of Software Engineering | (3+0+0) 3 |
| SWE 522 Software Requirements Engineering | (3+0+0) 3 |
| SWE 577 Directed Studies I | (0+4+0) 0 |
| SWE 5xx Elective | (3+0+0) 3 |
| **Total Semester Credits: 9** | |

### Semester 2

| | |
|---|---|
| SWE 523 Managing Software Development I | (3+0+0) 3 |
| SWE 530 Software Design Process | (3+0+0) 3 |
| SWE 573 Software Development Practice | (2+0+4) 4 |
| SWE 578 Directed Studies II | (0+4+0) 0 |
| SWE 5xx Elective | (3+0+0) 3 |
| **Total Semester Credits: 13** | |

### Semester 3

| | |
|---|---|
| SWE 550 Software Quality Assurance and Reliability | (3+0+0) 3 |
| SWE 574 Software Development as a Team | (2+0+4) 4 |
| SWE 599 Project | (0+3+0) 0 |
| SWE 5xx Elective | (3+0+0) 3 |
| **Total Semester Credits: 10** | |

**Total Credits : 32=9+13+10**

## Prerequisites

Candidates are expected to have a command of basic computer literacy, basic programming terms and at least one programming language. In addition, those who did not take the equivalent of the courses SWE 501, SWE 510, SWE 514 and SWE 521 before must take these courses as remedial courses.

Candidates should have a GPA at least 2.00/4.00 and ALES score of at least 55 (or a GRE equivalent).

Candidates must prove that they have an adequate command of English by providing their Boğaziçi University. English Proficiency Test (BUEPT) score or an equivalent of TOEFL/IELTS score.

The quota for the Fall and Spring semesters is 50 each. There is no quota for English Preparatory Classes. Applications are made to the Department of Computer Engineering.

## Further Information

Web: http://www.cmpe.boun.edu.tr/swe
E-posta: swe@cmpe.boun.edu.tr
Telefon: (212) 359 4508 Hicran Kırılmaz, Program Secretary
(212) 359 4523-24 Secretary, Computer Engineering
Faks: (212) 287 2461

## Remedial Courses

| | |
|---|---|
| SWE 501 Intro. to Object Oriented Programming | (3+0+0) 3 |
| SWE 510 Data Structures and Algorithms | (3+0+0) 3 |
| SWE 514 Computer Systems | (3+0+0) 3 |
| SWE 521 Database Systems | (3+0+0) 3 |

## Electives*

| | |
|---|---|
| **SWE 511 Computer Architecture** | **(3+0+0) 3** |
| **SWE 512 Operating Systems** | **(3+0+0) 3** |
| **SWE 520 Computer Networks** | **(3+0+0) 3** |
| **SWE 531 Managing Software Development II** | **(3+0+0) 3** |
| SWE 540 Multimedia and Web | (3+0+0) 3 |
| SWE 541 Electronic Commerce | (3+0+0) 3 |
| SWE 542 Advanced Software Engineering | (3+0+0) 3 |
| SWE 543 Decision Support Systems | (3+0+0) 3 |
| **SWE 544 Internet Programming** | **(3+0+0) 3** |
| **SWE 545 Distributed Systems Programming** | **(3+0+0) 3** |
| **SWE 546 Data Mining** | **(3+0+0) 3** |
| **SWE 547 Human Computer Interaction** | **(3+0+0) 3** |
| SWE 548 High Performance Computing | (3+0+0) 3 |
| SWE 549 Systems Software and Programming | (3+0+0) 3 |
| **SWE 551 Lightweight Client Programming** | **(3+0+0) 3** |
| **SWE 552 Telecomm. Software Engineering** | **(3+0+0) 3** |
| **SWE 553 Embedded Systems** | **(3+0+0) 3** |
| SWE 554 CAD/CAM Software Development | (3+0+0) 3 |
| **SWE 555 Artificial Intelligence Techniques** | **(3+0+0) 3** |
| **SWE 556 Advanced Database Systems** | **(3+0+0) 3** |
| **SWE 571 Project I** | **(0+3+0) 0** |
| **SWE 572 Project II** | **(0+4+0) 0** |
| SWE 575 Case Studies in Software Engineering I | (0+4+0) 0 |
| SWE 576 Case Studies in Software Engineering II | (0+4+0) 0 |
| SWE 580-595 Spec. Topics in Software Engineering | (3+0+0) 3 |
| **SWE 587 Theory of Computation for S. Eng.** | **(3+0+0) 3** |
| **SWE 588 Advanced Algorithms** | **(3+0+0) 3** |
| **SWE 589 Software Measurement-II** | **(3+0+0) 3** |
| **SWE 590 Software Measures** | **(3+0+0) 3** |
| **SWE 591 Object Oriented 3D Graphics** | **(3+0+0) 3** |
| **SWE 592 Advanced Database Systems** | **(3+0+0) 3** |
| SWE 593 Formal Methods in Software Veri. and Valid. | (3+0+0) 3 |
| **SWE 594 Multi-Core Programming** | **(3+0+0) 3** |
| **SWE 595 Secure Software Development** | **(3+0+0) 3** |
| **SWE 596 Patterns in Software Engineering** | **(3+0+0) 3** |
| **SWE 597 Game Software Development** | **(3+0+0) 3** |
| **SWE 598 Advanced Web Application Develop.** | **(3+0+0) 3** |

* **Elective courses that have been offered so far are bold faced.**