

Master of Science on ICS. Concentration in Embedded Systems Program

jointly offered by

The Donald Bren School of Information and Computer Science

University of California, Irvine, USA

and

Istituto di Cibernetica "Eduardo Caianiello"

Consiglio Nazionale delle Ricerche

Naples, Italy

Program¹

Academic year: 2008-2009

The Donald Bren School of Information and Computer Science and the Istituto di Cibernetica "Eduardo Caianiello" offer a Master of Science program in ICS a concentration in Embedded Systems. The goal of the M.S. concentration in Embedded Systems is to prepare ICS students for the challenges in exploiting technologies that are driving computing-based systems into new and emerging application domains. The ever-increasing integration of communications, multimedia, computing and relentless digitization of data continues to expand the scope and the complexity of embedded systems. To appreciate these advances, and to productively contribute to future advances of these systems, a critical appreciation of the underlying scientific principles is a must. The goal of this program is to develop a comprehensive understanding of the hardware and software technologies used in embedded systems. Students will develop an understanding of the technology capabilities and limitations and the methods to evaluate design trade-offs between different technology choices.

ADMISSION

Applicants will be evaluated on the basis of their prior academic record. Applicants for the M.S. degree are expected to have a bachelor's degree in computer science or a related field. Applicants are expected to have (1) skills in computer programming at least equivalent to those obtained in college-level courses in programming and language development; (2) skills in mathematics equivalent to those obtained in complete college-level courses in logic and set theory, analysis, linear algebra and modern algebra, or probability and statistics; (3) data structures, analysis of algorithms, automata theory, or formal languages; and (4) computer architectures.

All applicants are evaluated on the materials submitted: letters of recommendation, official GRE/TOEFL test scores, official college transcripts, and personal statement.

Master of Science Program

Detailed course requirements for the M.S. degrees are listed below. The normative time for completion of the M.S. program is no less than 12 months/quarters. Students may choose to take longer, and/or enroll in more classes than the required ones, at additional cost. All study must be completed within four calendar years from the date of admission.

Thesis Plan. The student must be in good academic standing with the Department. The student must enroll in at least two quarters of Thesis Supervision (ICS 298) that will substitute for two required courses as specified under the concentration area. All required courses must be completed with a grade of B or better, and the student must write a research or thesis project. A committee of three faculty members (voting members of the Academic Senate) will guide the student and give final approval of the thesis. The committee will consist of an advisor (ICS faculty member) who is willing to supervise the thesis project, and two other faculty members (one of which must be from ICS) who are willing to serve on the committee as readers of the thesis. An oral presentation of the thesis to the committee will be required.

Required Courses

The following courses must be completed with a grade of B or better: Introduction to Embedded and Ubiquitous Systems (ICS244), Computer Systems Architecture (ICS250A), Computer Graphics (ICS211A), High-Performance Architectures and their Compilers (ICS243), Network and Distributed Systems Security (ICS203), Parallel Computing (ICS242), Internet (ICS232), Modern Microprocessors (ICS250B), Thesis Research (ICS298), Distributed Computer Systems (ICS230), Design Automation and Prototyping of Embedded Systems (ICS247), Thesis Research (ICS298)

Suggested Electives. Students may focus their studies in specific domains within embedded systems by completing groups of electives as shown below.

Embedded System Architectures Focus: ICS 241, 252, 253.

¹ This program must be considered preliminary in the sense that it is pending approval by both parts.

Embedded Software Focus: ICS 221, 227, 245.

Distributed and Networked Embedded Systems Focus: Choose four out of the following five courses: ICS 241, 242, 243, 244.

Micro-Electronic Embedded Systems Focus: ICS 251, 254, 256, 257.

System Reliability and Fault Tolerance Focus: ICS 241, 250, 251, 253.

Theoretical Foundations of Embedded Systems Focus: ICS 242, 243, 258, 265.

Thesis

Each student must submit a thesis for approval by a three-person committee consisting of an advisor (who is an ICS Embedded Systems full-time faculty member) and two other full-time faculty members (one of which must be from ICS)

FAQ

Why should you choose such a “jointly” offered master?

1. To get an American Master’s Degree from one of the best public universities in the USA: the University of California (Irvine) The degree and diploma are in all respects identical to those of the on-campus (UCI) M.S. degree.
2. A very reasonable cost, compared to other alternatives for obtaining such a degree.
3. To improve your English, including technical English
4. To study part time in Naples, Italy and part time in Southern California, two of the most beautiful areas in the world.
5. To receive an advanced degree in 5 quarters of study.
6. To learn about Parallel and Embedded Systems, with equal emphasis on Parallelism and Embedded systems

What opportunities does this Program offer?

1. Spend two quarters (five-week periods) in the US at UC Irvine, in one of the safest cities in the US, within easy reach of Los Angeles, Hollywood, Beverly Hills, San Diego.
2. Do a research project on hot topics in Parallel/Embedded Systems at UCI or at the ICIB, an Italian research institute
3. Work done as part of this program can be used for full credit towards a Ph.D. degree at UCI, or may be accepted for credit at all other US universities.

How to register?

- The admission procedure is carried out through the Internet. More information is available at http://ms-es.cib.na.cnr.it/Admission_html
- The **admission deadline for this Master’s program is February 15th 2008**
- ***Where are the courses offered and in which language?***
 - The courses are offered for 3 quarters in Italy at Istituto di Cibernetica “E. Caianiello” and for 2 quarters, the summer ones, at the CS Department of the University of California, in Irvine.
 - The official language for all the courses is English.
- ***How much does it cost and when to pay?***
 - During the 2007-2008 academic year the cost for each quarter is \$ 5.250,00, this will go up slightly for ‘08-’9.
 - The Master tuition must be paid before the starting of each quarter.
- ***Is some financial support available?***
 - A limited amount of financial support will be available, for qualified students who can demonstrate need, This may range from tuition assistance to travel assistance between Irvine and Naples.
 - Alternatively, if willing/qualified to become involved into Istituto di Cibernetica research activities, some part-time job positions are expected to be available, providing financial support.
- ***How to apply for financial aid?***

- You must apply and be accepted into the Master's program, and indicate a need for financial aid within the application. Please also indicate if you are able to attend without or with partial financial support and give evidence for it.
- All financial aid will be given by Istituto di Cibernetica "E. Caianiello" and requests will also be evaluated by:
Master of Science program in ICS a concentration in Embedded Systems
Board of Directors
c/o Istituto di Cibernetica "E. Caianiello",
Via Campi Flegrei, 34 80078 Pozzuoli, Italy
- To be considered for temporary part-time job positions you should, in parallel with on-line application, interested applicants should send:
 - A curriculum vitae (resume), including where you obtained your undergraduate degree, what programming language you are proficient in, and your professional experience in software development should be clearly described.
 - and a cover letter to explicitly stating which research area the candidate prefers to be involved in. The available research areas are:
 - Distributed and cooperating Document management Systems
 - 3D virtual reality;
 - Mobility Systems
 - Parallel simulation of historic building dynamics.

All forms and documents must be sent to:

Direttore dell'Istituto di Cibernetica "E. Caianiello",
Via Campi Flegrei, 34 80078 Pozzuoli, Italy