

Carnegie Mellon /
University of Coimbra

Professional Master of Software
Engineering (MSE)

2009/2010



Carnegie Mellon

CMU?

PREMIUM ONLINE EDITION
America's Best Graduate Schools 2007

THE SCIENCES Rankings Directory Tools Articles Sciences Index

Computer Science

Ranked in 2006*

Rank/School	Average assessment score (5.0 = highest)
1. Carnegie Mellon University (PA)	5.0
Massachusetts Institute of Technology	5.0
Stanford University (CA)	5.0
University of California-Berkeley	5.0
5. Cornell University (NY)	4.6
University of Illinois-Urbana-Champaign	4.6
7. University of Washington	4.5
8. Princeton University (NJ)	4.4
9. University of Texas-Austin	4.3
University of Wisconsin-Madison	4.3
11. California Institute of Technology	4.2
Georgia Institute of Technology	4.2
13. University of California-San Diego	4.0
University of Maryland-College Park	4.0
15. Harvard University (MA)	3.9
University of California-Los Angeles	3.9
University of Michigan-Ann Arbor	3.9

UC?

- Oldest University in Portugal
 - One of the oldest in the world
 - 800 years of history and tradition
- Internationally ranked as the best University in Portugal



The Current State of the Software Industry

- Ever higher complexity, continuous change, super fast markets
- Large Scale systems are now the norm
- Low qualified labour is not the answer for creating high-value products
- The software industry needs Technical Leaders, and these will not just pop up in an ad-hoc way
- Projects live and die because of Technology, People and Processes; universities typically only teach the first.

CMU/UC Master of Software Engineering

Develop future leaders of industrial software engineering practice

- Explicitly training graduates for:
 - Effectively managing teams, projects and processes
 - Creating architectures for large-scale systems
 - Implementing change inside of organizations
 - Becoming team leaders, project managers, software architects
- Program that top organizations send their engineers to do before becoming team and section leads
- Widely recognized as being the Number One Program in Software Engineering worldwide

New Type of Degree

- 16 month INTENSIVE program
 - 4 months in Pittsburgh, USA
 - 12 months in Coimbra, Portugal
- Global classroom – Coimbra / Pittsburgh / India / Korea
 - Coimbra is THE offering for Europe!
 - Dual-degree: graduates earn a degree from Carnegie Mellon (US) and a degree from the University of Coimbra (Portugal)
- Two years of relevant professional experience **REQUIRED**
- Enrols only very bright people from anywhere in the world
- Professional Degree – from industry to industry

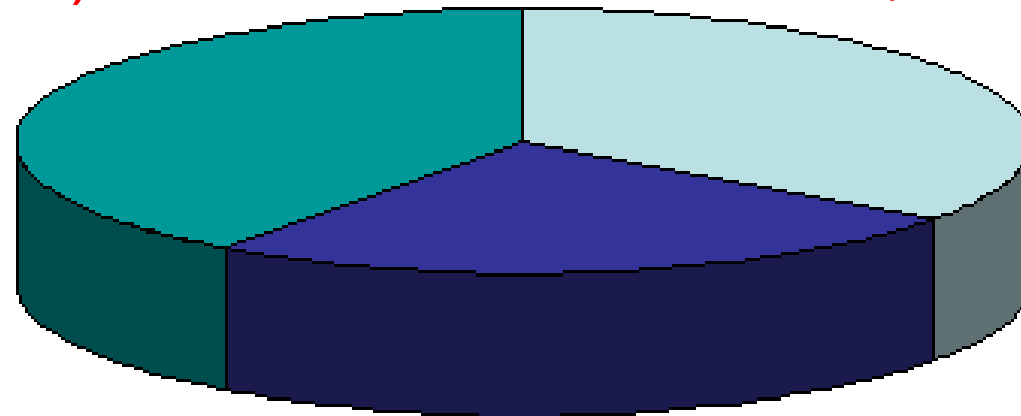
Student Profile / Admission Requirements

- 2+ years of relevant experience in Industry
 - Most students average 5 years
 - Projects, size, teams, development methodology, languages, etc.
- Strong Motivation
 - Must show a strong desire to become a technical leader and to improve the way software is made
- Highly recommended
 - Letters sent directly to the admission committee
 - Qualitative and Quantitative evaluation
- TOEFL + GRE scores
 - <http://www.ets.org/>
- Interview (in English)

MSE Overview

Software Development Studio
(40%)

Electives
(30%)



5 Core Courses
(30%)

Core Courses

- Methods of Software Development
 - Learn how to gather, manage and analyze requirements
- Managing Software Development
 - Learn different software development methods and lifecycles
- Analysis of Software Artifacts
 - Learn how to reason about artifacts, from specification to code
- Architectures for Software Systems
 - Learn how to systematically create architectures for large-scale systems
- Models of Software Systems
 - Learn how to formally model and reason about software

Program Overview

- **Fall 2009 (@Coimbra):** August→December
 - 17-651: Models of Software Systems 12U
 - 17-653: Managing Software Development 12U
 - 17-652: Methods: Deciding What to Design 12U
 - 17-671: Software Development Studio I 9U
 - 17-676: Software Engineering Bootcamp 3U
 - 17-656: Comm. for Software Engineers I 3U

- **Spring 2010 (@Pittsburgh):** January→May
 - 17-654: Analysis of Software Artifacts 12U
 - 17-655: Architectures for Software Systems 12U
 - 17-672: Software Development Studio II 12U
 - 17-657: Communication for Software Engineers II 3U
 - *Elective* 9-12U

Program Overview (2)

- **Summer 2010 (@Coimbra): May→August**
 - 17-673: Software Development Studio II 48U
 - *Elective* 9-12U

- **Fall 2010 (@ Coimbra): August→December**
 - 17-674: Studio Reflective Practice 12U
 - *Elective* 9-12U
 - *Elective* 9-12U

Software Development Studio

- Working in teams of five, students analyze a significant and challenging problem, autonomously planning, managing and implementing a realistic solution for an industrial client
 - E.g. NASA, Google, General Motors, BOSH, U.S. Navy, etc.
- The studio project starts on the first day students arrive at the program and ends on the day they leave
- Each project is fully mentored by two faculty staff
- It serves as a learning forum for applying the techniques studied in the core courses

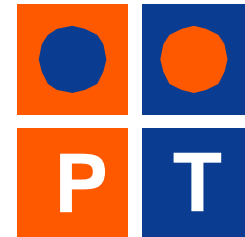
Electives

- Courses that students take advancing their knowledge in specific areas
- Example courses:
 - Risk Management for Software Intensive Projects
 - Software Systems Security Engineering
 - Managing Technical People
 - Software Measurement
 - Software Process Improvement
 - Real-Time Software and Systems
 - Embedded Systems
 - *(among others)*

How Much and Who?

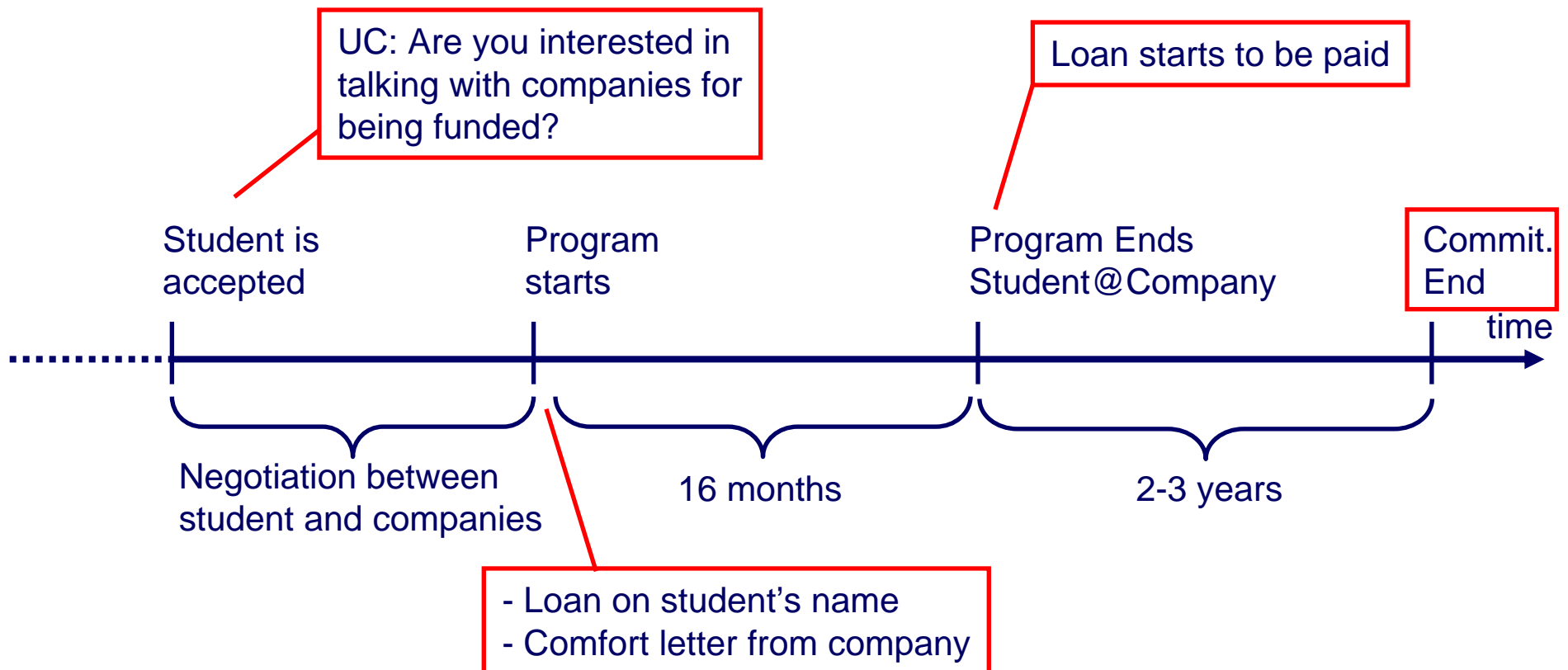
- Tuition: 10.000€
- Plus cost of living (Portugal + US)
- There's the possibility of being fully-funded for studying
- Our industrial partners hire you at the end!

Novabase



MSE Affiliate Sponsor's Program

- Companies are willing to fully-fund students giving them a job at the end of the program!
 - About 30k€, seen as a join-in bonus
 - In a way that is safe for the company and safe for the student



When?

Application Deadline 2010/2011

February/2010

Questions?

Change your life!

MSE

MASTER OF SOFTWARE ENGINEERING

<http://mse.dei.uc.pt>