

# European Masters Programme in Software Engineering

Free University of Bozen-Bolzano, Italy (UNIBZ)

University of Oulu, Finland (OY)

Technische Universität Kaiserslautern, Germany (UNIKL)

Universidad Politécnica de Madrid, Spain (UPM)

2<sup>nd</sup> Call for Applications

Edition: EMSE 2017-2019

**Deadline: July 10<sup>th</sup>, 2017**



Application web site: <http://em-se.eu>

Online Application at: <https://emse.inf.unibz.it/submissions2/>

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## 1. OVERVIEW

EMSE Consortium composed by the Free University of Bozen-Bolzano, Italy (UNIBZ), the University of Oulu, Finland (OY), the Technische Universität Kaiserslautern, Germany (UNIKL) and the Universidad Politécnica de Madrid, Spain (UPM) offers a two-year (120 ECTS credits) Joint Masters Programme, named European Masters Programme in Software Engineering (**EMSE**).

### 1.1. DESCRIPTION OF THE PROGRAMME

The EMSE curriculum covers a wide range of topics, such as software process management, verification and validation, software design, requirements engineering and advanced topics including software quality, distributed systems and development, global software development, embedded systems and open source software & agile development.

### 1.2. STRUCTURE OF THE PROGRAMME

The curriculum consists of modules (divided into foundations and advanced topics in Software Engineering), a mandatory Internship, a Summer School and a Master thesis.

The full structure can be accessed at <http://em-se.eu/index.php/the-programme/>.

The Programme foresees a mobility period in two different Partner Universities of EMSE Consortium. A **mobility track** is one of such mobility period in which the student spends one year in one University (i.e., **first university**) and one year in another University (i.e., **second university**). A **learning path** is a study plan defined on a specific mobility track. The learning paths are accessible at <http://em-se.eu/index.php/study-plan/>.

The Internship and the Master thesis will be carried out during the second year (on the third semester for the Internship). The Master thesis will be jointly supervised and evaluated by two supervisors, one from each University attended by the student (for more information please consult: <http://em-se.eu/index.php/exams-and-thesis/>).

### 1.3. GRADUATES' PROFILE

Overall, students will gain a solid knowledge to be applied as managers in software companies, IT specialist and/or applied researchers in academia. The Programme prepares students to continue with doctoral studies in Empirical Software Engineering (ESE) as well. The typical profiles of an EMSE graduate include:

- **Software Engineer (SE)** whose duties include work in the areas of user and systems requirements and analysis, software design, development, and maintenance, software process management, and maintenance of information systems, also in non-IT environments;
- **Information Technology (IT) manager** whose duties include the management of information systems of any level of complexity and size; and
- **Researcher in Empirical Software Engineering (ESE)** in public and private research centres or universities whose work comprises the empirical investigation of the quality of software processes and systems of any level of complexity and size.

#### 1.4. *LEARNING OUTCOMES*

A successful student will be able to:

- Have solid knowledge of theoretical foundations in Software Engineering (SE) and their application in the several informatics domains; have knowledge of techniques and methods of design, development, test, and maintenance of information systems and be able to apply them in different contexts, also not typically IT, where the software technology is anyway crucial;
- Be able to analyse and solve problems in SE of several different levels of complexity with specific focus on empirical investigation; that is, employ the scientific methods of investigation in SE; in particular, understand and use mathematical instruments that support ESE and its practice;
- Have basic knowledge of public, corporate and professional cultures and societies in Europe;
- Have practice in various software applicative sectors in the socio-economic context including the non-IT specific like health, automotive, energy;
- Be able to work in large autonomy also managing projects and infrastructures over different platforms, like cloud, distributed, or mobile systems;
- Have a command of the SE technical knowledge and skills necessary to practice as software developer;
- Have a command of the SE management skills needed to organize and control software project team work;
- Be able to reconcile conflicting project objectives providing reasonable cost and time information;
- Overcome the challenges of global software development and internationalization.

The international dimension of the Masters Course guarantees that students familiarise with different educational methods and multi-culture.

#### 1.5. *LANGUAGE*

All courses are taught in English. Students are requested to acquire language skills in the local language (e.g., by passing an exam) of each University they will attend on the first and on the second year.

#### 1.6. *STARTING TERM*

The term starts between August – October depending on the first university internal calendar.

#### 1.7. *MASTERS DEGREE AWARDED BY THE PROGRAMME*

Upon the successful completion of the curriculum and fulfilment of the Masters course requirements, students will be awarded a double degree, one for each University they have visited. The official names of the awarded degrees are:

- Laurea magistrale in Informatica in Italy, Classe delle Lauree n. LM 18 del D.M. n. 270/2004;
- Master of Science (M.Sc.) in Germany;
- Master of Science in Information Processing Science in Finland; and
- Máster Universitario en Ingeniería del Software in Spain.

## 2. ADMISSION

To be admitted, applicants need to fulfil the **admission criteria**.

### 2.1. ADMISSION CRITERIA

In order to be admitted, applicants must fulfil the following requirements:

- **Meet the application deadline;**
- **Indicate the preferred mobility track;**
- **Have excellent academic background:** candidates will be evaluated on the basis of their curriculum vitae, academic grades, professional experience, and letters of recommendation.
- **Have been awarded a BSc in Software Engineering, Computer Science or Computer Engineering or degrees with equivalent skills in the three areas (Software Engineering, Computer Science or Computer Engineering) by an internationally recognized university-level institution.** Applicants who have not completed their first level degree yet, but are expected to graduate before **July 31<sup>st</sup>, 2017**, are allowed to apply to the current call for application. However, if selected, to be admitted to the Programme, they will have to provide a copy of the first-level degree certificate before **July 31<sup>st</sup>, 2017**.
- **Provide proof of proficiency in English language at level B2.2 (CEFR).**
  - o With one or more of the following internationally recognized certificates, issued no more than 5 years before application deadline date: TOEFL ( $\geq 567$  (paper based),  $\geq 227$  (computer-based), or  $\geq 87$  (internet-based)), IELTS ( $\geq 6.0$ ) or equivalent certificates. For more information regarding “Equivalent certificates”, applicants are advised to check at [http://em-se.eu/wp-content/uploads/2015/11/English\\_certificate\\_conversion.pdf](http://em-se.eu/wp-content/uploads/2015/11/English_certificate_conversion.pdf)
  - o With University declaration of undergraduate studies in English: applicants who have received a degree from a university-level institution where the official teaching language is English must submit a declaration issued by the same University stating that English is the official language of the respective program of degree at level B2.2 or equivalent.
  - o With country of origin certification: applicants who are citizens and first-degree-holders of the following English speaking countries Antigua & Barbuda, Australia, Bahamas, Barbados, Belize, Canada, Gambia, Ghana, Grenada, Guyana, Republic of Ireland, Jamaica, Kiribati, Liberia, Mauritius, Micronesia, New Zealand, Nigeria, Papua New Guinea, St. Kitts-Nevis, St. Lucia, St. Vincent, Sierra Leone, Solomon Islands, Trinidad & Tobago, Uganda, United Kingdom, United States of America, Zambia or Zimbabwe must submit a document attesting their country of origin.
  - o The consortium may request an assessment of the student's English level during the selection interview.

Candidates from India, Pakistan and Bangladesh are advised to contact in advance the relevant diplomatic Representation in their country of residence in order to confirm the documentation required for the pre-enrolment procedure in case of acceptance.

In order to proof their eligibility for the admission criteria, applicants must submit on line the following digital documents that must be compliant to the originals:

- A copy of the of English proficiency certificate;
- Curriculum Vitae (European format);
- Proof of nationality (copy of passport);
- Proof of place of residence (e.g., residence certificate);
- Certified (translated into English) copy of university diploma;
- Certified (translated into English) copy of Transcript of study Results (subjects taken during their degrees, along with the marks obtained and the number of hours/credits devoted to each subject); and
- Recommendation letters (one compulsory and 1 optional) with contact reference(s).

**Upon admission to the Programme, candidates shall provide copies of their university diplomas and transcript of records duly legalised and apostilled.**

## 2.2. *SELECTION CRITERIA*

Candidates that fulfil the admission criteria will be ranked according to the following selection criteria:

- Academic records;
- Type of entrance qualification;
- Work experience and professional qualifications;
- Motivation and willingness, curriculum vitae; and
- Recommendation letters and references.

### 3. PARTICIPATION COSTS (EMSE TUITION FEE)

For each academic year, the participation cost is EUR **6.000,00** for Partner Country students and EUR **4.250,00** for Programme Country Students.

Programme country students (**PrC**): are applicants

- Whose citizenship is one of European Union, Turkey, the former Yugoslav Republic of Macedonia (FYROM), and the European Economic Area / European Free Trade Association (Iceland, Liechtenstein, Norway). The list of programme countries is available at <http://em-se.eu/wp-content/uploads/2015/11/PartnerProgrammeCountryList.pdf>
- Partner Country students who are/have been residents or have carried out their main activity (studies, training or work) for more than a total of 12 months over the last five years in any Programme Country are considered as Programme Country students. The five-year reference period for this 12-months rule is calculated backwards as from the submission deadline (**10<sup>th</sup> July 2017**) of applying for a scholarship.

Partner country students (**PaC**): are all the applicants

- Whose citizenship is **NOT** one of European Union, Turkey, the former Yugoslav Republic of Macedonia (FYROM), and the European Economic Area / European Free Trade Association (Iceland, Liechtenstein, Norway). The list of partner countries is available at <http://em-se.eu/wp-content/uploads/2015/11/PartnerProgrammeCountryList.pdf>
- Partner Country students who are/have **NOT** been residents **NOR** have carried out their main activity (studies, training or work) for more than a total of 12 months over the last five years in any Programme Country are considered as Partner Country students. The five-year reference period for this 12-months rule is calculated backwards as from the submission deadline (**10<sup>th</sup> July 2017**) of applying for a scholarship.

Students with a double nationality (of a Partner and of a Programme Country) must specify their nationality under which they submit their scholarship application.

The participation costs cover: European insurance cost, social taxes, cost for one local language course per year and university services according to the local regulations of each university visited (e.g., access to library, computer laboratories, Wi-Fi, Internet, alumni associations, university sport associations).

The participation costs for any further year(s) is to be paid directly by the student to the Second Hosting Institution.

The participation costs for any further year(s) are laid down in accordance with the Internal Regulations of each Full Partner University.

The amount of the participation costs for any further year(s) will be communicated to the students in question before the beginning of the third academic year in order to allow students to meet all relevant obligations. The participation costs for any further year(s) will be charged annually and may be subject to annual increases.

Students that are not awarded an EMSE scholarship will obtain a support to travel for the Summer school.

#### **4. SCHOLARSHIPS OF EMSE CONSORTIUM**

EMSE Consortium offers for the edition 2017/2019, second application session, two EMSE scholarships of 24.000,00 € for PrC candidates respectively for the paths:

First year UNIBZ - Second year UPM and

First year UNIKL – Second year OY

This scholarship will cover the annual participation cost (see section 3) and leave to the awarded student a subsistence allowance of about 15.500,00 €

#### **5. AWARDING PROCEDURE**

A Joint Board consisting of academic/administrative representatives of all Universities will review the candidacies.

Applicants that fulfil the admission criteria will be ranked according to the selection criteria.

A preliminary ranking list and a reserve list will be defined accordingly.

The Joint Board will interview applicants in the preliminary ranking list.

Applicants of the preliminary reserve list can be interviewed upon decision of the Joint Board.

After the interviews, applications are ranked and a final scholarship list and reserve list are formed.

Applicants in the **final scholarship list** will be awarded an EMSE Consortium scholarship according to the availability in each mobility track (see section 4) and the order of the ranking list. If no scholarship for the mobility track chosen by an applicant of the ranking list is available, the applicant will be offered a scholarship for a different mobility track. In case of applicant's refusal or no answer by the confirmation deadline, the first applicant of the final reserve list will be offered the scholarship. The selection will continue iteratively until all scholarships have been allocated.

Applicants in the reserve list will be awarded an EMSE Consortium scholarship only in case of refusal of applicants in the final ranking list.

Applicants of the scholarship list must communicate the acceptance and participation to the programme by the date specified in section 8. Applicants in the reserve list will be notified of available scholarships and confirm their acceptance and participation to the programme as specified in Section 7 and 8.

Applicants that fulfil the admission requirements, but do not awarded an EMSE Consortium scholarship and can participate to the Programme as self-paying. **THE EMSE CONSORTIUM WELCOMES ADMITTED APPLICANTS WITH THEIR OWN SOURCES OF FUNDING.**

## 6. HOW TO APPLY

Applicants apply on-line at the EMSE website <https://emse.inf.unibz.it/submissions2/>

Applicants are requested to fill out the on-line application and provide the following documents in electronic form:

- A copy of the of English proficiency certificate;
- Curriculum Vitae (European format);
- Proof of nationality (copy of passport);
- Proof of place of residence (e.g., residence certificate);
- Certified (translated into English) copy of university diploma;
- Certified (translated into English) copy of Transcript of study Results (subjects taken during their degrees, along with the marks obtained and the number of hours/credits devoted to each subject);
- Recommendation letters (one compulsory and 1 optional) and references.

**Upon admission to the Programme, candidates shall provide copies of their university diplomas and transcript of records duly legalised and apostilled.**

Additional documents may be requested. Unreadable or incomplete documents or late submissions will not be considered.

A selection of the top ranked applications admitted to the EMSE programme **will be interviewed** as described in section 5 and 8.

In the application, applicants must specify the mobility track. Students selected for one type of track cannot later change the two universities of destination. Applicants cannot apply to more than one type of grant or mobility track.



## 7. HOW TO ENROL

Admitted students will be contacted by the EMSE Project Manager and guided in the enrolment procedure.

To secure the participation, admitted students **must pay the participation costs' first instalment by the confirmation date (see section 8):**

- €600,00 for Partner country applicants; and
- €425,00 for Programme country applicants.

Scholarship holders will be reimbursed of such payment with the first monthly allowance.

## 8. IMPORTANT DATES

- **March 14<sup>th</sup>** : submission opening date
- **March 14<sup>th</sup> – July 10<sup>th</sup>** : admission can be notified to candidates anytime during this period
- **July 10<sup>th</sup>**: submission closing date
- **July 11<sup>th</sup> - July 14<sup>th</sup>**: interviews with applicants of the ranking list
- **July 15<sup>th</sup>**: notification of admission and scholarships award to applicants
- **July 24<sup>th</sup>** : confirmation of participation to the EMSE Programme and acceptance of the scholarship from applicants awarded an EMSE Scholarship by **sending an email and the receipt of the participation cost first instalment**
- **July 30<sup>th</sup>** : confirmation of participation to the EMSE Programme and (eventually) acceptance of the scholarship from applicants of Reserve list and confirmation of participation to the EMSE Programme from all other admitted applicants by **sending an email and the receipt of the participation cost first instalment**

## 9. CONTACTS

### **EMSE Secretariat**

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