

Erasmus Mundus MSc in Dependable Software Systems (DESEM)

University Partners

The three institutions that are members of the DESEM Erasmus Mundus Consortium are:

- [National University of Ireland Maynooth \(NUIM\)](#) in Ireland;
- [University of St. Andrews \(UStA\)](#) in Scotland; and
- [Université de Lorraine \(UL\)](#) in France.

Students may achieve a two-year double Master Programme, named **Erasmus Mundus MSc in Dependable Software Systems (DESEM)** through achieving the appropriate ECTS in two of the above universities. The role of each university is outlined below:

The expertise at the **National University of Ireland, Maynooth** is in the development of quality software coupled with the transfer of this knowledge to industry. Through the rigorous software development stream, students are exposed to the technical, methodological, and organizational aspects of this area so that successful participants will be able to develop safety critical software for the industrial and commercial sectors. The primary emphasis in this stream is on the techniques for rigorous scientific software development, grounded in a hands-on understanding of the applicability of these techniques. Consequently, this stream builds on the use of these techniques in project work and includes the opportunity of completing an industry related project. NUIM has expertise in placing and supervising industry based projects in software engineering for over 15 years of the MSc in Computer Science (Software Engineering) and through industrial work experience programmes for the undergraduate students on the BSc in Computer Science and Software Engineering.

The role of the software systems streams at the **University of St Andrews** is to present expertise in the practical aspects of dependable and critical software systems. As systems become more and more distributed and embedded in society so does the complexity and criticality of the failure modes, locations and consequences. By understanding the software, social and distributed systems issues presented in the Distributed Systems and Software Systems streams, graduates will have a unique and valuable set of skills. Students also have the option of specialising in Knowledge-based Systems where they learn about the contribution of artificial intelligence to the toolsets available for the development of reliable software systems. The project work in association with one of St Andrews highly acclaimed research programmes will address key software development problems in dependability, architecture and social informatics.

Université de Lorraine focus on the theoretical foundations that are required for the construction of reliable software systems. Much of the expertise here highlights the way in which formal reasoning has integrated itself into a number of software development tools, techniques and methods. This stream will draw from the breadth and depth of this experience, placing emphasis on the practical application of formal reasoning in real problem solving, and industrial strength software projects. It will also draw on the expertise of staff that collaborate, through their local research institute LORIA, on related EU and ANR projects that have vibrant collaborations with software companies like SAP, EADS and ClearSy Ltd.