

**SEED**  
**Simulation in Engineering and Entrepreneurship Development**

**Duration:** 48 months

**Course description:**

The main objective of the International Doctoral Programme “Simulation in Engineering and Entrepreneurship Development” (SEED) is to train doctoral researchers with the aim of creating a competitive network of researchers with demonstrated skills in advanced techniques in computational mechanics, and with the capacity of transferring this knowledge into industry. SEED is an initiative of the Consortium comprising Universitat Politècnica de Catalunya, Swansea University (United Kingdom), École Centrale de Nantes (France), Technische Universität München (Germany), Technische Universiteit Eindhoven (Netherlands), Instituto Superior Técnico (Portugal), Université Libre de Bruxelles (Belgium) and Instituto Universitario di Studi Superiori (Italy), and managed by the associated partner Centre Internacional de Mètodes Numèrics en Enginyeria (CIMNE).

It is our primary goal to attract highly motivated students of excellent academic ability from all over the world, by offering a unique combination of higher education in world leading institutions, cutting-edge multidisciplinary research, industrial experience and entrepreneurship awareness in spin-offs companies, together with a cultural enhancement through the development of all these skills across two host countries within the EU. The expertise of the eight partners cover advanced techniques in computational mechanics such as X-FEM, discontinuous Galerkin, mortar methods, or advanced time-discretisation algorithms. These techniques have allowed the partners to model in a large variety of disciplines such as aeronautics, civil engineering, biomedical engineering or nanotechnology, and have given rise to numerous spin-offs.

The programme is subdivided into three stages. In the first and second stages, of one year each, the student is located in a Primary and Secondary Institution (PI and SI), respectively. In the third stage, the student spends one further year (extensible to two years) back in the Primary Institution, where the PhD thesis is completed. Each PhD candidate is co-supervised by a member of the PI and the SI. A Steering Committee is also appointed to guide the supervision, and according to the background of the student, it suggests complementary training. The evolution of the PhD is also evaluated through two monitoring reports which must be handed out by the end of the first and second stages. The Board of Studies (BoS), who is responsible for the whole SEED, ensures through its biannual meetings that the objectives of SEED are satisfied. The total research and training carried out by the doctoral students over the course of the programme will be equivalent to 180 ECTS. The training skills correspond to 60 of them, while the remaining ECTS correspond to delivery and attendance of seminars, a Summer Schools, and potential industrial placements in a set of supporting European industrial partners such as Philips, Rockfield, FFT, GasNatural Fenosa, Compass, Tat-steel, Ceneiro or Trelleborg.

**Website:** <http://www.cimne.com/emjd-seed/>

**Partners:**

UNIVERSITAT POLITÈCNICA DE CATALUNYA, Spain (Co-ordinating Institution)  
UNIVERSITÉ LIBRE DE BRUXELLES, Belgium  
ECOLE CENTRALE NANTES, France  
TECHNISCHE UNIVERSITÄT MÜNCHEN, Germany  
ISTITUTO UNIVERSITARIO DI STUDI SUPERIORI, Italy  
TECHNISCHE UNIVERSITEIT EINDHOVEN, Netherlands  
INSTITUTO SUPERIOR TÉCNICO, Portugal  
SWANSEA UNIVERSITY, United Kingdom

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**Maximum grant:**

1 196 600 € (50 000 € consortium + 1 146 600 € fellowships), 2013