Full partners and coordinators:

- École Centrale de Nantes, France (ECN): *Francisco Chinesta, Nicolaes Moes, Laurent Stainier, Michel Visonneau*
- Instituto Superior Técnico, Portugal (IST): *José Paulo Moitinho de Almeida*
- Istituto Universitario di Studi Superiori, Italy (IUSS): *Ferdinando Auricchio, Franco Brezzi, Annalisa Bufa, Carlo Lovadina, Alessandro Reali, Giancarlo Sangalli*
- Swansea University, United Kingdom (SU): *Javier Bonet, Antonio Gil, Kenneth Morgan, Oubay Hassan, Djordje Perić*
- Technische Universiteit Eindhoven, Netherlands (TU/e): *Marc Geers, E Harald van Brummelen*
- Technische Universität München, Germany (TUM): *Wolfgang A Wall, Lena Yoshihara*
- Université Libre de Bruxelles, Belgium (ULB): *Arnaud Deraemaeker, Rajan Filomeno Coelho, Thierry J. Massart*
- Universitat Politècnica de Catalunya, Spain (UPC): *Pedro Díez, Antonio Huerta*

Associated:

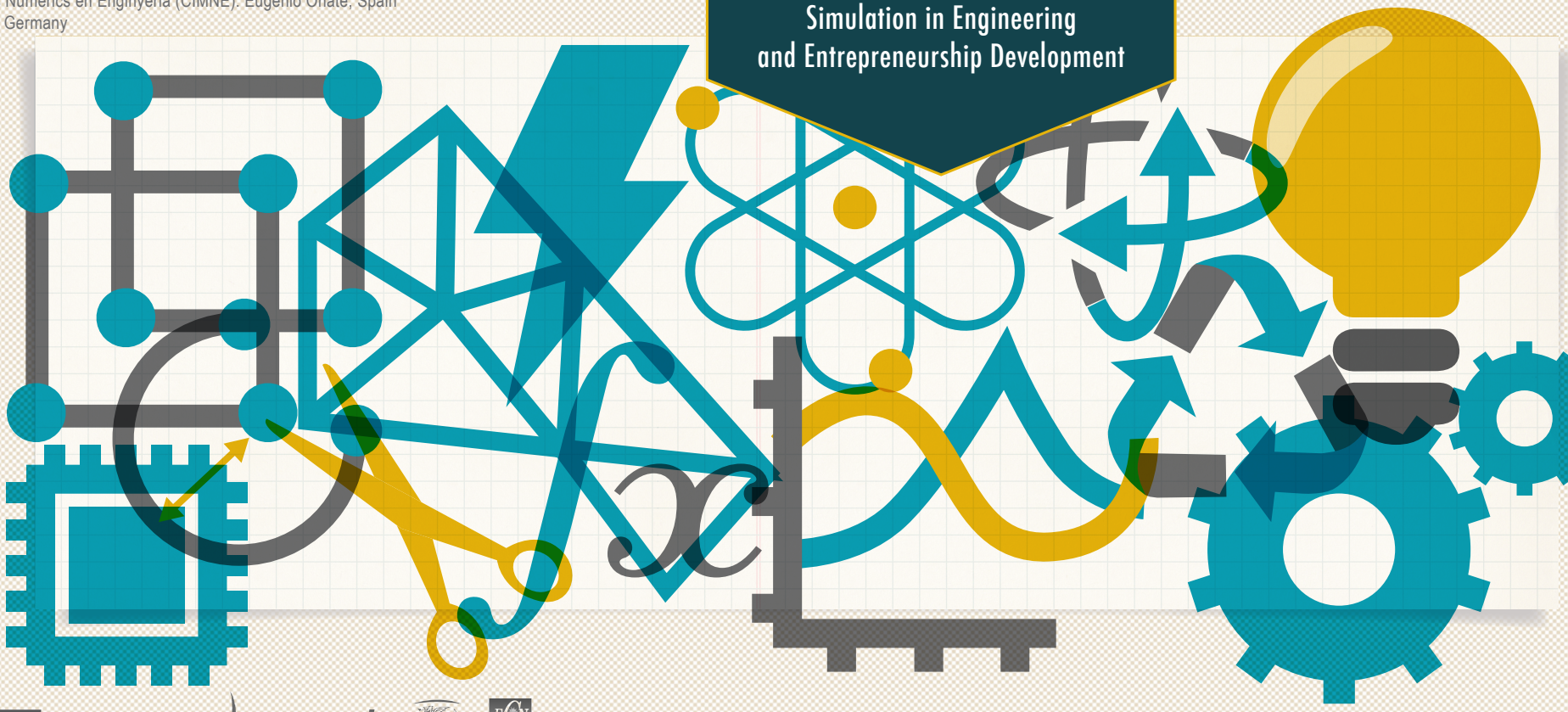
- Centre Internacional de Mètodes Numèrics en Enginyeria (CIMNE): Eugenio Oñate, Spain
- AdCoEnGW: Volker Gravemeier, Germany
- Goodyear, Luxembourg
- Rockfield Ltd., United Kingdom
- BAE Systems, United Kingdom

Education and Culture DG
Lifelong Learning Programme

Erasmus Mundus
Joint **Doctorate**

SEED

Simulation in Engineering and Entrepreneurship Development



CIMNE UPC TUM IST ULB IUSS TU/e ECN Centrale Nantes

www.cimne.com/emjd-seed

Presentation

The Erasmusm Mundus Joint Doctorate SEED provides in-depth training in the development and implementation of new state-of-the-art computational techniques for the modelling and solution of cutting-edge engineering problems in industry. Research will be carried out one or more up-to-date techniques such as:

- Discontinuous Galerkin (DG)
- Fluid Structure Interaction (FI)
- Isogeometric analysis
- X-FEM
- Mesh-free methods
- Mortar Methods
- Error estimation
- Multi-scale analysis
- Mesh generation

SEED program aims to meet industry current needs, where early product prototyping and development is now entirely carried out through numerical modelling, prior to physical experimentation of a few selected designs. The complexities of such models require new computational approaches, which are the main focus of SEED research activities. As a result, SEED candidates aim to cover important areas in engineering which include:

Biomedical engineering: vascular system, respiratory system, tissue engineering.
Civil engineering: soil stability, foundations, earthquake engineering, durability.
Aerospace engineering: composite materials, turbulence analysis, aerodynamics.
Environmental engineering: noise analysis, pollution analysis, risk management.

Students will be also taught to develop core entrepreneurial skills to successfully move ideas into commercial practice through a series of transversal entrepreneurship modules, as part of their training. Doctoral students will be immersed in an innovation environment through interaction with newly established R&D spin-offs hosted within specialist incubator units.

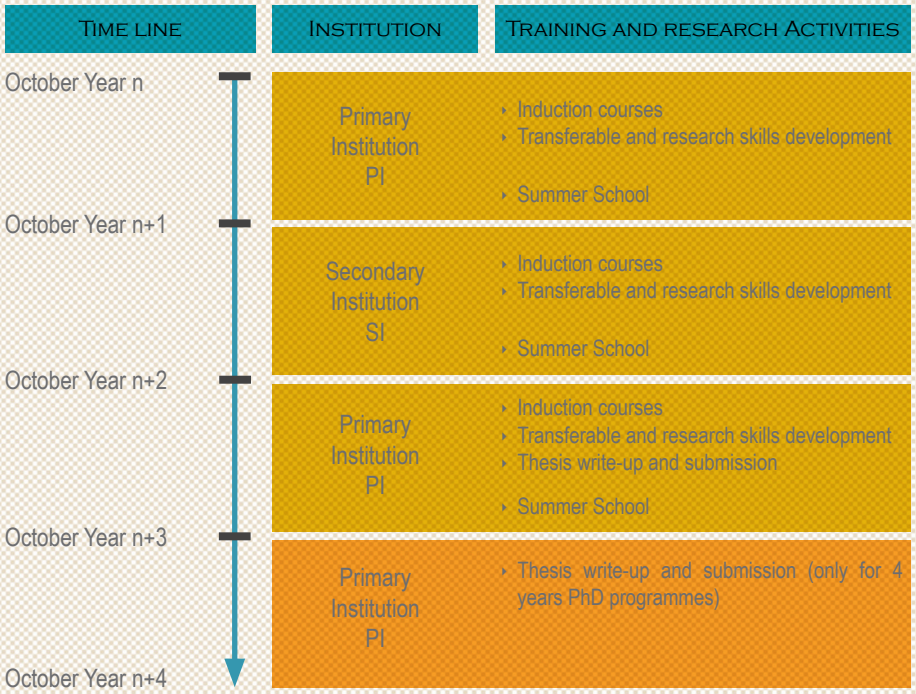
Structure of the studies

Each SEED PhD student will visit a Primary Insitution (PI) and a Secondary Institution (SI), and will be involved in a particular topic for 3-4 years, depending on the visited institutions and the evolution of the research activity.

The SEED program is structured in the following 3 phases:
Phase I at PI, 1 year
Phase II at SI, 1 year
Phase III at PI, 1-2 years
Each PhD student is supervised by main supervisor at PI and a co-supervisor at SI. Programs with strong participation may include a third supervisor of one of the industrial associated partners.

Training is completed through the following aspects:

- Research skills (28 ECTS*): basic and advanced computational techniques.
- Transferable skills (15 ECTS*): communication skills, preparing research proposals, scientific writing…
- Summer Schools (6 ECTS*): attendance and participation in summer shool
- Industrial Training (11 ECTS*): entrepreneurship and industrial placements



Fellowhips

The consortium offers approximately 9 fellowships for the full PhD period. The fellowships cover a net monthly salary not lower than 1400 EUR/month. A mobility allowance of up to 2500€/year will be provided for non-European students.

Health and insurance is also covered by the fellowship. European and non-European candidates are welcome to apply online through the SEED web page:
www.cimne.com/emjd-seed/apply.asp

Admission requirements

All admitted PhD students will have to satisfy the following minimum requirements:

Degree equivalent to a Masters in Engineering Applied Mathematics, Physics or a similar science based subject, equivalent to at least 300 ECTS*.
Non-native English speaking candidates will be required a minimum IELTS score of 7.0 (in both the written and oral).

* 1 ECTS = 25-30 hours of work, 60 ECTS = 1 year of studies