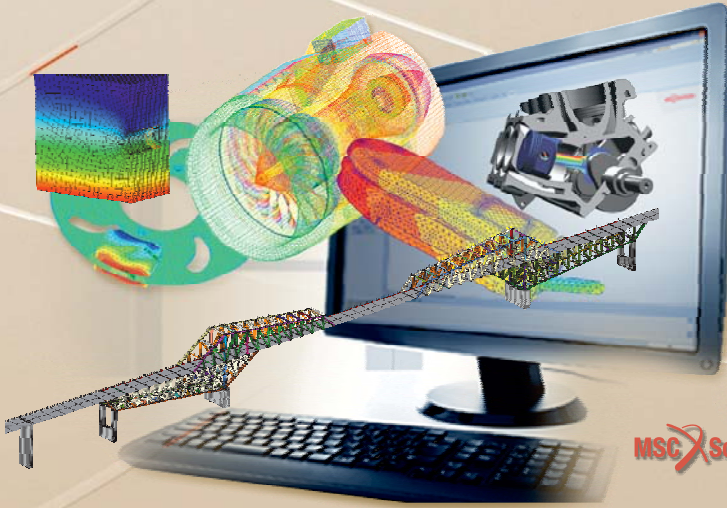


# 23<sup>rd</sup> INTERNATIONAL MASTER'S IN THEORETICAL & PRACTICAL APPLICATION OF FINITE ELEMENT METHOD AND CAE SIMULATION



Since 1993

On-Line Master's

# 2017

Master's global partners



Master's Local partners

CAE Solution LLC	USA	Techscience Ltd	GBR
NUMERIA, TS SPA	CHL	IMEOH	FRA
Yuma Engineering SC.	MEX	SimuTek	TUR
Laudos, Estudos e Proj.	BRA	Promimarlik	TUR
Cristian Ovalle	GTM	Esteq	ZAF

## Expert Module

- ⊗ Mechanical Branch
- ⊗ Construction Branch

## Specialized Modules

- ⊗ Dynamic Analysis
- ⊗ Nonlinear Analysis
- ⊗ Heat Transfer Analysis
- ⊗ Advanced Steel Structure Analysis
- ⊗ Fluid Mechanics Analysis
- ⊗ Advanced Concrete Structure Analysis
- ⊗ Geotechnical Analysis
- ⊗ Electromagnetic Analysis
- ⊗ Composite Structures
- ⊗ Scientific programming language: Python

## Master Module

- ⊗ Final Master's Project

## Software used

### Mechanical Branch

- ⊗ Patran / MSC Nastran
- ⊗ ANSYS

### Construction Branch

- ⊗ CivilFEM powered by Marc
- ⊗ CivilFEM for ANSYS

### Fluid Mechanics

- ⊗ CFD ++
- ⊗ ANSYS CFD
- ⊗ XFlow

### Electromagnetics

- ⊗ Maxwell

The students who choose CivilFEM powered by Marc  
in the Construction branch  
will get special discount in training materials



## Introduction

ETSII/UNED and Ingeciber began their partnership in 1993 by unifying their wide experience of using numerical analysis methods in different research areas and engineering applications, with the objective of preparing specialists in the use of the Finite Element Method (FEM) and CAE Simulation for practical professional application.

After 18 editions of the Master's preparing students from Spain, Portugal and South America, the Master's started to use English in 2011 and became totally international, reaching students from all around the world.

To reinforce its international presence and to increase the experience accumulated in the use of FEM in the industry, the Master's agreed a partnership for the tutorships of the application and practice software with EnginSoft – Italy and IDAC – UK (now CADFEM UK).

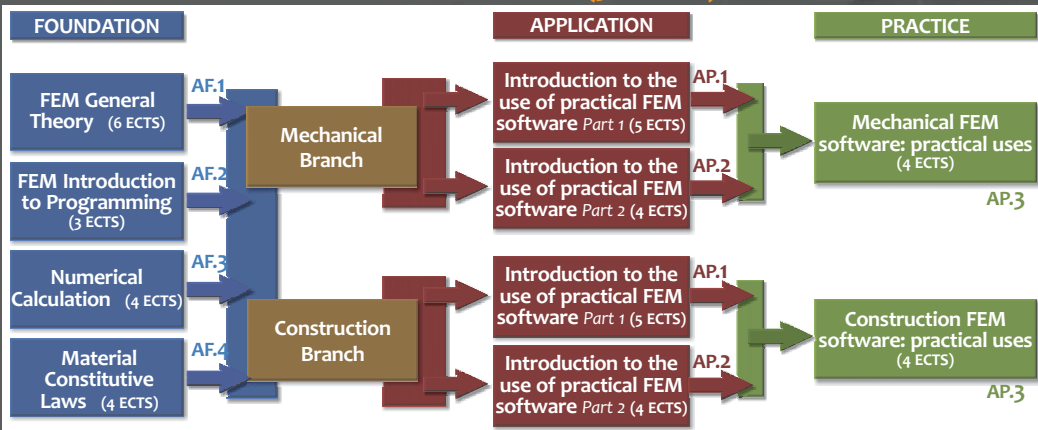
The Master's also signed international partnerships to promote the course with different Local Partners in different countries.

More than 3,300 postgraduates have participated in the Master's, which clearly demonstrates that the course has obtained wide prestige and recognition over the years.

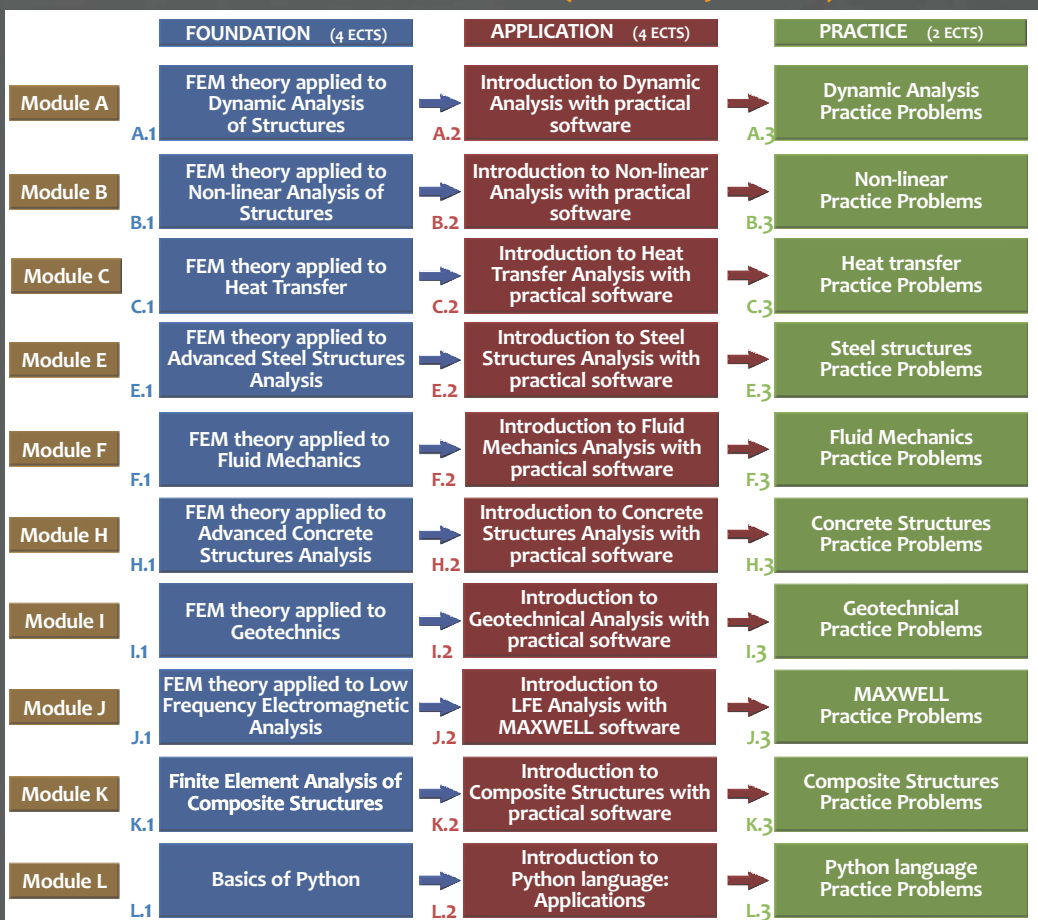
We hope that you consider undertaking our world class Master's Degree course and achieve your full potential.

# Course Structure

## EXPERT MODULE (30 ECTS.)



## SPECIALIZED MODULES (10 ECTS. by module)



The Master's degree is matched with an internationally approved credit point system (ECTS). The program has a total of 70 credits.

# Specialized Modules Groups for Master Degree

- ⚙ Mechanical: Expert Mechanical branch and A, B, C, F, J, K and L modules\*
- ⚙ Structural: Expert Construction branch and A, B and E modules
- ⚙ Construction: Expert Construction branch and A, B, E, H, I and L module\*

\*Three modules must be chosen to complete the Specialized Modules Group for the Master Degree.

## Degrees

### Expert in theoretical and practical application of finite element method

(Students must take Expert Module)

### Specialist in theoretical and practical application of finite element method and CAE simulation

(Students must take the Expert Module and one Specialized Module)

### Master's in theoretical and practical application of finite element method and CAE simulation

(Students must take the Expert Module, one of the Specialized Modules Group and the Final Master Project)

Two diplomas are issued by UNED UNIVERSITY of Spain and INGECIBER S.A. This Master Programme is for university postgraduates only, applicant students require at least a bachelor degree to join in.

## Course Content

The multi-dimensional curriculum is aimed not just at acquiring knowledge but at developing critical thinking and analytical ability and facilitating research at every stage of the course.

- 1. Expert Module:** provides key understanding of the FEM and general application, in order to have a solid foundation to further develop at more advanced levels.
- 2. Specialized Modules:** provide a huge range of possibilities for in-depth analysis of different areas through theoretical and practical knowledge: Dynamic, Non-Linear, Heat Transfer, Fluid Mechanics, Steel Structures, Advanced Concrete analysis, Geotechnics, Electromagnetic, Composites and Programming language.
- 3.** The course offers **three different degree options** (Expert, Specialist and Master's) to pursue your training through core and elective subjects.
- 4.** A **wide range of texts and yearly updated practical exercises** (English language) provide complete studying material. (Foundation subjects available in Spanish too)
- 5.** Application and practical learning is accomplished by using advanced **Professional Software : Patran/MSC Nastran, ANSYS, CivilFEM powered by Marc, CivilFEM for ANSYS, CFD++, ANSYS CFD, XFlow and Maxwell** (under Educational Licenses).
- 6.** The course uses the following tools: on-line virtual classrooms, on-line meetings, technical forums, e-mail, on-line additional support material, etc.

## Route

**Students who take Mechanical Branch** in the Expert Module, use PATRAN / MSC NASTRAN or ANSYS software in the following specialized modules: Dynamic, Non-Linear, Heat Transfer and Composite Structures; CFD++ or ANSYS CFD and XFlow software in Fluid Mechanics Specialized Module; and Maxwell for Electromagnetics Specialized Module.

**Students who take Construction Branch** in the Expert module, use CivilFEM powered by Marc or CivilFEM for ANSYS software in the following specialized modules: Dynamic, Non-Linear, Steel Structure, Advanced Concrete and Geotechnics.



## Methodology

**Base Texts:** Designed, updated and structured specifically for the Master's course.

**Software:** Students will use educational licenses of the application and practice software.

**Virtual Classrooms:** Students can interact with fellow students, professors, tutors and download course material and upload course work and exams.

**Tutors:** Experts in all of the different areas are available to guide and assist students throughout the course.

**Continuous Assessment Exercises (CAEs):** Students must complete continuous assessment work (exercises) and upload them at the VC.

**Exams:** All exams must be completed on-line.

**Specific Sessions:** Master's opening session, On-line meetings, others.



## Teaching Staff

### Director

☉ Professor Juan José Benito Muñoz. School of Industrial Engineers, UNED University.

### Deputy directors

☉ Mr. Miguel Angel Moreno Fdez, de Yepes, CEO, Ingeciber, S.A.

☉ Mr. Ambrosio Baños Abascal. Head of Engineering Department, Ingeciber, S.A.

### Theoretical subjects professors

☉ Professor Enrique Alarcón Álvarez. Civil Engineer PhD, U.P.M.

☉ Mrs. Arancha Alarcón-Fleming. Civil Engineer, PhD, PE, LEED AP. UNED Collab.

☉ Mr. José Ramón Arroyo Arroyo. MSc Mechanical Engineer, INTEMAC

☉ Associate Professor Ramón Álvarez Cabal. Mechanical Engineer PhD, U.P.M.

☉ Professor Juan José Benito Muñoz. Mechanical Engineer PhD, UNED

☉ Associate Professor Francisco Blázquez García. Mechanical Engineer PhD, U.P.M.

☉ Professor Luis Gavete Corvinos. Mine Engineer PhD, U.P.M.

☉ Professor Julio Hernández Rodríguez. Mechanical Engineer PhD, UNED

☉ Mr. Marcos Latorre Ferrús. MSc Aeronautical Engineer. U.P.M.

☉ Mr. Enrique López del Hierro Fernández. MSc Mechanical Engineer, UNED

☉ Professor Francisco Montans Leal. Mechanical Engineer PhD, U.P.M.

☉ Mr. Ángel Muelas Rodríguez. Civil Engineer PhD, OHL Group..

☉ Associate Professor Ignacio del Rey Llorente. Mechanical Engineer PhD, U.P.M.

☉ Professor Mariano Rodríguez-Avial Llardent. Mechanical Engineer PhD, UNED

☉ Associate Professor José Ángel Sánchez Fernández. Civil Engineer PhD, U.P.M.

☉ Professor José M<sup>a</sup> Sancho Aznal. Architect PhD, U.P.M.

### Lecturers

☉ Mrs. M<sup>a</sup> Cruz Argüeso Chamorro. MSc Civil Engineer. Ingeciber, S.A.

☉ Mr. Gabriel Arias. MSc Mechanical Engineer. CADFEM

☉ Mr. Hasan Avsar. B.Sc. Astronautical Engineer. EnginSoft.

☉ Mr. Pablo Arrieta Yáñez. MSc Naval Engineer, Ingeciber, S.A.

☉ Mr. Ambrosio Baños Abascal. MSc Science, Ingeciber, S.A.

☉ Mr. Daniele Calsolaro. MSc Mechanical Engineer. EnginSoft

☉ Mr. Michele Camposaragna. Msc Mechanical Eng. PhD Applied Math. EnginSoft

☉ Mr. Javier Carro Sotillos. MSc Civil Engineer, Ingeciber, S.A.

☉ Mr. Stefano Cavalleri. MSc Mech. Eng. PhD Mechatronics and Inn. Tech. EnginSoft

☉ Mr. José Luis Gómez Villanueva. MSc Mechanical Engineer. Ingeciber, S.A.

☉ Mr. Amer Kasim. MSc Mechanical Engineer. UNED collaborator.

☉ Mr. Juan Carlos Lancha. Civil Engineer PhD. OHL Group.

☉ Mr. Román Martín Martín. MSc Civil Engineer, Ingeciber, S.A.

☉ Mr. Miguel Ángel Moreno Fdez. De Yepes. Civil Engineer PhD, Ingeciber, S.A.

☉ Ms. Valentina Peselli. MSc Aerospace Engineer. EnginSoft

☉ Mr. Fabio Rossetti. MSc Mechanical Engineer. EnginSoft

☉ Mr. Eduardo Salete Casino. Civil Engineer PhD, UNED

☉ Mr. Miguel Ángel Sanz Gómez. MSc Mechanical Engineer. U.P.M.

☉ Mr. Andrea Serra. MSc Teleco. Eng. PhD Information Eng. EnginSoft

☉ Mr. Mariano Serrano de la Asunción. Mechanical Engineer. Ingeciber, S.A.

☉ Mr. Ronald Siat Caparrós. MSc Civil Engineer, Ingeciber, S.A.

☉ Mr. Alessio Trevisan. MSc Mechanical Engineer. EnginSoft

☉ Mr. Luis Valdivia Montoro. MSc Civil Engineer. Ingeciber, S.A.

☉ Ms. Elena Vallejo. MSc Mine Engineer. CADFEM

☉ Mr. Nicola Varotto. MSc Civil Engineer. EnginSoft

## Calendar

☉ Registration deadline

Jan. 13, 2017

☉ Opening Session

Feb. 11, 2017

☉ Expert Module

Feb. 13 to Oct. 15, 2017

☉ Specialized Modules

May. 8 to Nov. 30, 2017

☉ Master Module - Final Project\*

May. 8 to Nov. 30, 2017

☉ Fees

Expert Module: 2700€

Specialized Modules: 900€/Mod.

Master's Final Project: 900€

\* A limited number of partial scholarship places will be allocated on the course.

\* Job placement assistance for students after completing the Master Programme.

\* Students could substitute the Final Master's Project for an internship in a previously authorized company.

## Enrolment



On-line registration:

[www.uned.es/masternef](http://www.uned.es/masternef)

Address:

Avda. Monforte de Lemos, 189.

28035 Madrid. Spain

Phone number:

(+34) 91 386 22 22.

E-mail:

[secretariat@ingeciber.com](mailto:secretariat@ingeciber.com)