



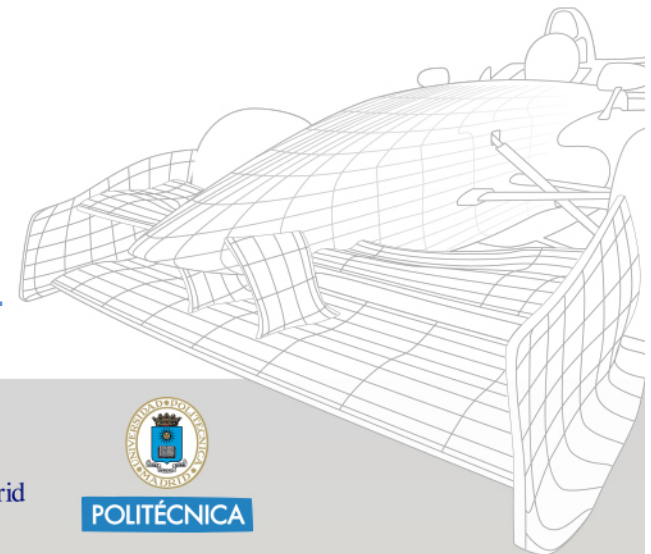
Master in Industrial Mathematics (M2i):
An experience with cross-institutional education
in industrial mathematics



MASTER IN
INDUSTRIAL
MATHEMATICS



Success stories from the ECMI Educational Programme.
Online Industrial Mathematics.



UNIVERSIDADE DA CORUÑA

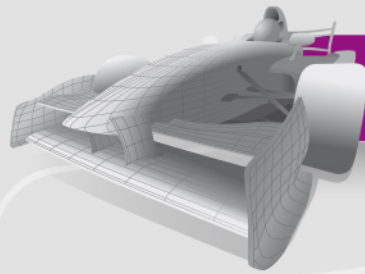
Universidade de Vigo



Universidad
Carlos III de Madrid



POLITÉCNICA



M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

www.m2i.es

The **Master in Industrial Mathematics (M2i)** is an official degree jointly delivered by

- University of Santiago de Compostela (USC)
- University of A Coruña (UDC)
- University of Vigo (Uvigo)
- Carlos III University of Madrid (UC3M)
- Technical University of Madrid (UPM)



Since the current academic year **2013/2014**.

The M2i duration is **3 semesters**

Offers **two specializations**:

- Modelling
- Numerical Simulation

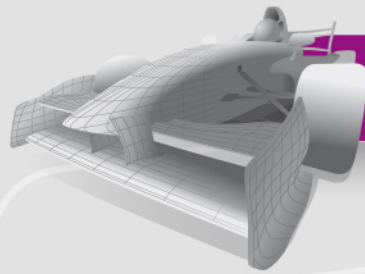


Universidade de Vigo



Universidad
Carlos III de Madrid





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

www.m2i.es

The coordinators of **Master in Industrial Mathematics (M2i)**

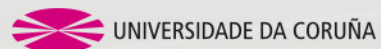
- University of Santiago de Compostela (USC¹ + ¹ª Global coordinator)
- University of A Coruña (UDC²)
- University of Vigo (Uvigo³)
- Carlos III University of Madrid (UC3M⁴)
- Technical University of Madrid (UPM⁵)



A. Bermúdez^{1ª}, L. Bonilla⁴, A. Liñán*, J.M. Vega⁵, E. V-C¹, C. Vázquez², J. Durany³

* Life Honorary Member, ECMI 2006

Master in Industrial mathematics (M2i): Providing a specific education to solve real problems in industry.
ECMI Newsletter N 55, pg 15-17, March 2014



Universida de Vigo

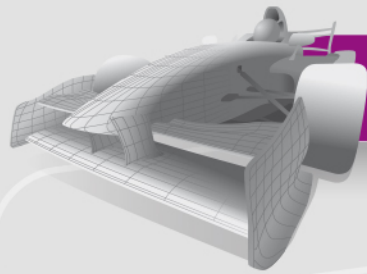


Universidad
Carlos III de Madrid



POLITÉCNICA





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

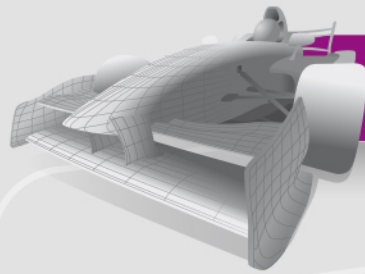
Progressive learning

M2i arises from the fusion of two official degrees:

- Master in Mathematical Engineering (MIM), by the universities USC, UDC and UVigo (7 editions from 2006/2007)
- Master in Mathematical Engineering (4 editions from 2006/2007) / Master in Industrial Mathematics (2 editions from 2010/20011), by the UC3M ECMI Teaching Center

http://www.ecmi-indmath.org/?page_id=151

The main aim of the M2i is to unify subjects of high applied mathematical contents and already taught in specific engineering masters.



M2i

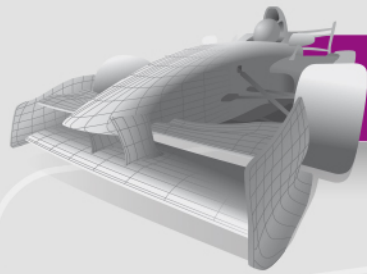
MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Some ideas for this master are taken from the report by the Organization for Economic Co-operation and Development (OECD) “Global Science Forum. Report on Mathematics in Industry”. ECMIMIM and the tradition of ECMI.

The **scientific and technological interests** of the M2i mainly focus on four basic aims:

1. Expand the analytical skills and knowledge of graduate students who will be part of **future** research groups and professional teams.
2. Instruct the students in mathematical **modelling** for applications in **industry**.
3. Provide specific skills in relation to the design, construction and management of **specific software** of at least one industrial sector.
4. Introduce students to the **research** topics and development related to the subjects of the program.



M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

Welcoming Ceremony



M2i degree promotes a strong dynamic relationship among our main stakeholders:

- Students
- Alumni
- Faculty members
- Professionals from industry

Mentoring course



Applied mathematics and industry interaction forums



<http://www.itmati.com/en/node/12544>

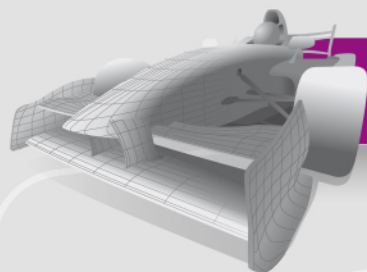


Universida de Vigo



Universidad Carlos III de Madrid





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

www.m2i.es

Students & Alumni

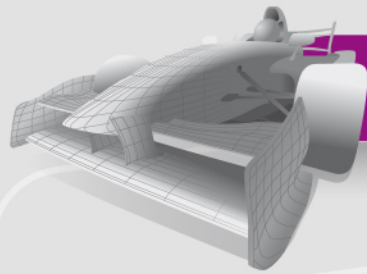


Universida de Vigo



Universidad
Carlos III de Madrid





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Entry requirements

Degrees/academic transcripts:

1. Maths, physics, engineering
2. Architecture, sciences
3. Economics, business administration



Welcoming Ceremony, September 2012

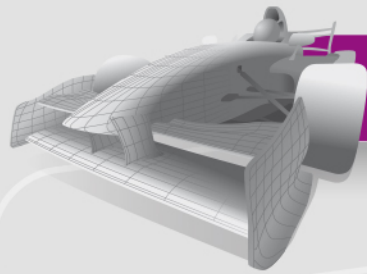


Universida de Vigo



Universidad
Carlos III de Madrid





M2i

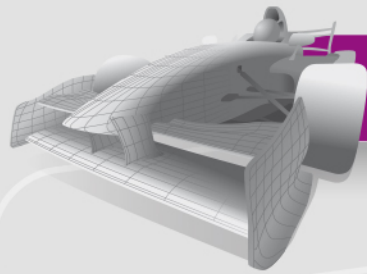
MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Alumni

- Regular information on jobs offers, courses, seminars is sent to both Alumni and current students.
- Since May 2012 we are very involved in a LinkedIn group for alumni and current master students called:
 “MIM & M2i - Estudiantes y egresados”
with 107 members





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

www.m2i.es

Alumni

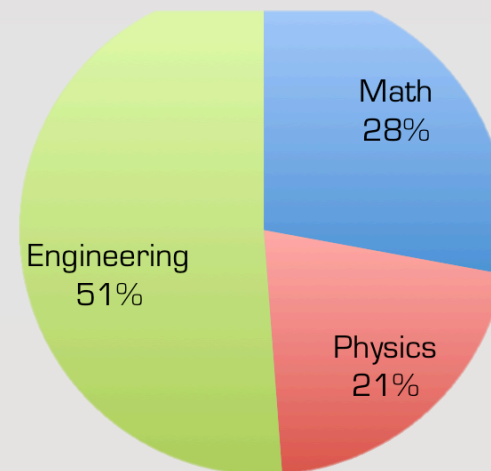
Some results of the survey to the first five Graduating classes of students of the Master in Mathematical Engineering (MIM), by the universities USC, UDC and UVigo

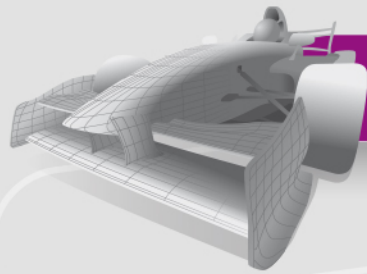
43 answers:

Male 27 (62.8%)

Female 16 (37.2%)

Degrees/Academic transcripts





M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

Alumni

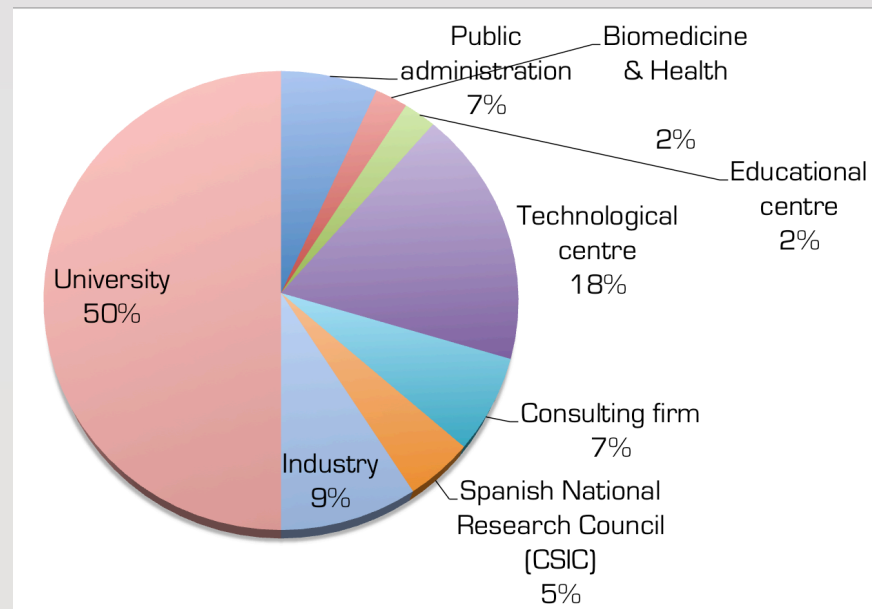
Are you currently employed?

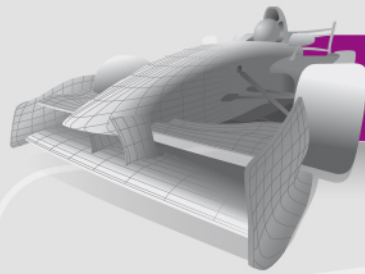
Yes: 90.7%

Did you find your current employment thanks to the Master's distribution list?

Yes: 16.3%

Type of company





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Alumni

Degree of correlation between the working activity and the MIM

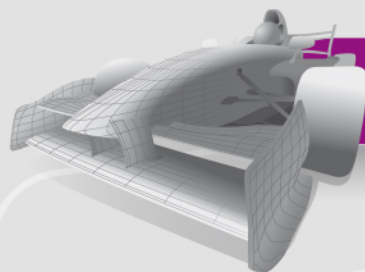
Very high	32.6%
High	32.6%
Acceptable	18.6%

Do you think that the knowledge acquired in your company should be included in the MIM?

It is not necessary for the MIM: 74,4%
Yes: 25,6%

Would you recommend the MIM to a person who finishes this year his studies of degree/degree or engineering?

Yes: 90.7%

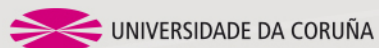


M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

MIM students come from the Spanish universities

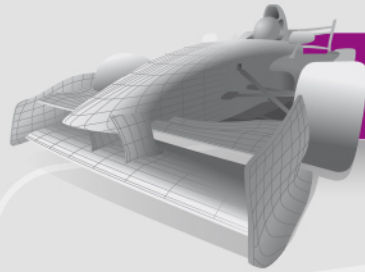


Universidade de Vigo



Universidad Carlos III de Madrid







M2i

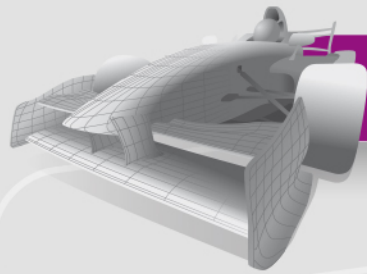
MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

-  Istanbul Teknik Üniversitesi (Turquía)
-  RWTH Aachen University (Alemania)
-  Universidad de la República (Uruguay)
-  Universidad de San Martín (Argentina)
-  Universidad Nacional de Córdoba (Argentina)
-  Urgench State University (Uzbekistan)
-  Universidad de Roma (Italia)
-  Università Politecnica delle Marche (Italia)

MIM students come from the non-Spanish universities 

-  Erasmus
-  Erasmus Mundus



M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

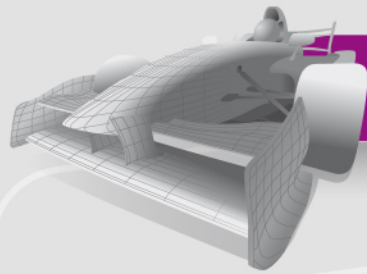
As an international student...



I am **Umid Karimov from Uzbekistan**. I received my Masters in Mathematical Engineering (Máster en Ingeniería Matemática-MIM) in 2010 as an Erasmus Mundus student. I didn't realize how fortunate I am to be a part of the MIM until after I finished it.

The resources made available to the students for research and conferences are outstanding, but the most exceptional aspect is the high degree of access to a **dedicated and engaging faculty**. MIM has amazing professors who are greatly concerned about their students. My experience was distinguished by a number of professors in the program that served as **genuine mentors** to me and encouraged me throughout in both my teaching and research. **As an international student**, this support was invaluable, and I am deeply thankful for the energy and time those professors invested in me.

Great professors, fellow students, very diverse backgrounds, all the aspects of the program made my **learning experience the best possible**. Currently, I am teaching at the Department of Applied Mathematics and Mathematical Physics at the Urgench State University, Uzbekistan.



M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

the right choice for me...



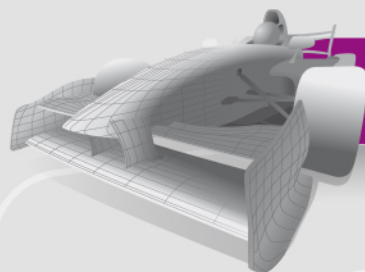
Mathematics Engineering gave me technical knowledge in practical and interesting areas.

The master was definitely **the right choice for me**, and provided me with many opportunities.

This master program gives you a solid understanding of the **Numerical Methods** and Finite Elements principles that are at the foundation of many of the **models** used in engineering. It gave me the skills to work with some **software** tools.

Mathematics Engineering not only does an **excellent job at teaching** a highly valued and well respected technical skill set, but more importantly, the program develops your **critical thinking** and problem solving skills that are applicable to a wide variety of fields.

Aygul Babadjanova (An Erasmus Mundus student in 2008).
Uzbekistan.

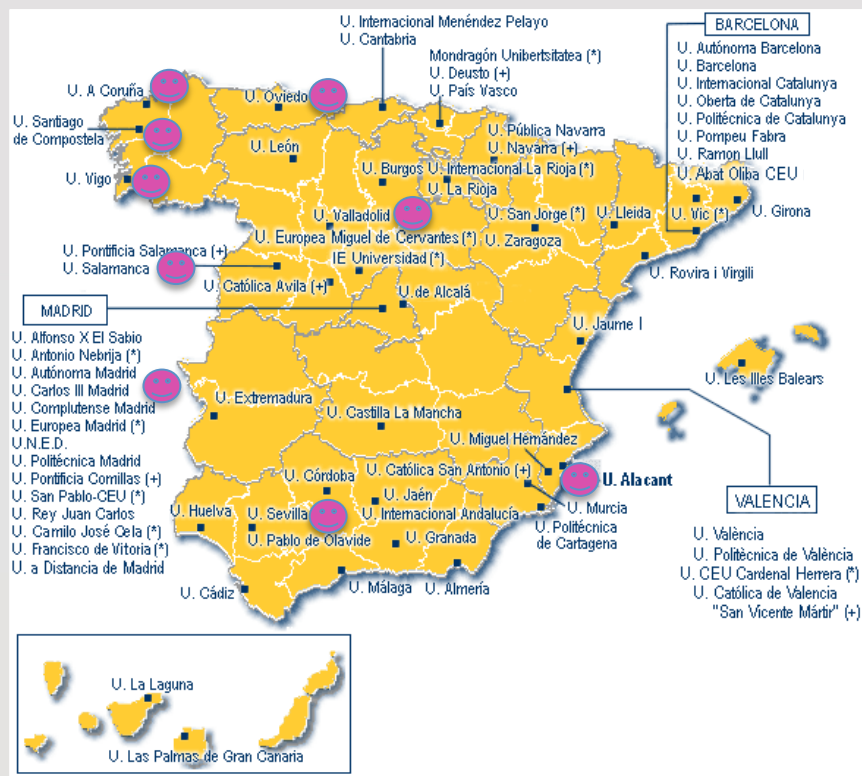


M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

😊 M2i students come from the Spanish universities

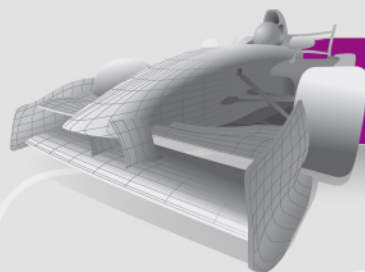


Universida de Vigo



Universidad Carlos III de Madrid



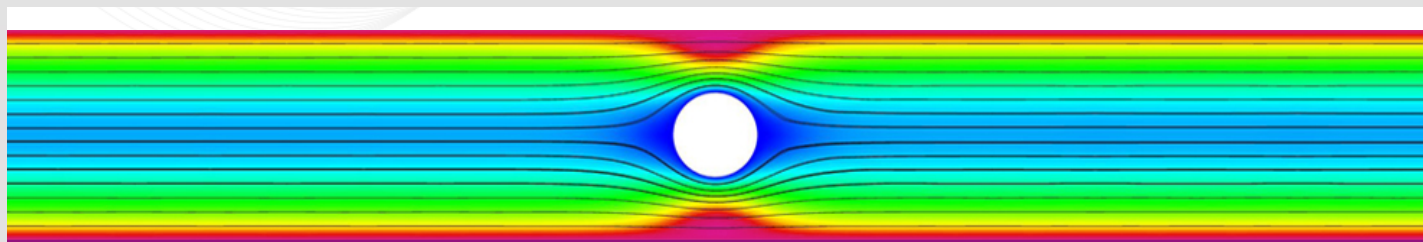


M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

Faculty



FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

UNIVERSITY OF A CORUNA

Department of Mathematics and

others

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

CARLOS III UNIVERSITY OF MADRID

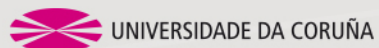
Gregorio Millán Insitute and others

TECHNICAL UNIVERISTY OF MADRID

Department of Applied Mathematics and others

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators

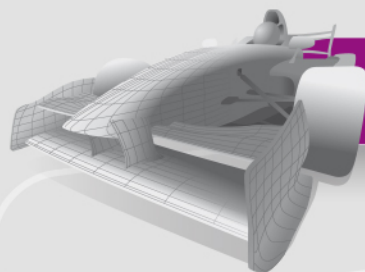


Universida de Vigo



Universidad Carlos III de Madrid





Faculty

FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

José Antonio Álvarez Dios
Associate Professor
Web

Carlos José Álvarez López
Associate Professor
Web

Carlos Amiana Ares
Asistant Professor
Web

Patricia Barral Rodiño
Associate Professor
Web

Alfredo Bermúdez De Castro López-Varela
Professor
Web

José Carlos Cabaleiro Domínguez
Associate Professor
Web

José Luis Ferrín González
Associate Professor
Web

María Dolores Gómez Pedreira
Associate Professor
Web

Jesús Liñares Beiras
Professor
Web

Oscar López Pouso
Associate Professor
Web

María del Carmen Muñiz Castiñeira
Associate Professor

Rafael Muñoz Sola
Associate Professor

Francisco José Pena Brage
Assistant Professor
Web

Juan Carlos Pichel Campos
Research Fellow "Isidro Parga Pondal"
Web

Peregrina Quintela Estévez
Professor
Web

Jerónimo Rodríguez García
Research Fellow "Ramón y Cajal"
Web

Carmen Rodríguez Iglesias
Associate Professor
Web

Jesús María Rodríguez Presedo
Associate Professor

María del Pilar Salgado Rodríguez
Associate Professor

Duarte Santamarina Ríos
Assistant Professor

María Luisa Seoane Martínez
Associate Professor

María Elena Vázquez Cendón
Associate Professor
Web

Miguel Ernesto Vázquez Méndez
Associate Professor
Web

Juan Manuel Viaño Rey
Professor
Web

Miguel Angel Vilar Rivas
Lecturer
Web

UNIVERSITY OF A CORUÑA

Department of Mathematics and others

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

CARLOS III UNIVERSITY OF MADRID

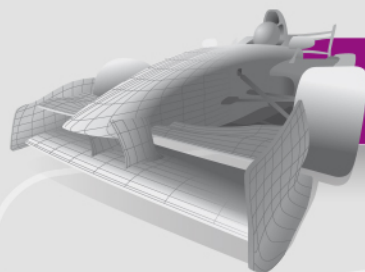
Gregorio Millán Insitute and others

TECHNICAL UNIVERISTY OF MADRID

Department of Applied Mathematics and others

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators



Faculty

FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

UNIVERSITY OF A CORUNA

Department of Mathematics and others

Javier Andrade Garda
Associate Professor
Web

Íñigo Arregui Álvarez
Associate Professor
Web

José Jesús Cendán Verdes
Associate Professor

Web

Ana Ferreiro Ferreiro
Assistant Professor
Web

José Antonio García Rodríguez
Associate Professor

María González Taboada
Associate Professor

Luis María Hervella Nieto
Associate Professor
Web

Andrés Prieto Aneiros
Assistant Professor
Web

José Manuel Rodríguez Seijo
Associate Professor
Web

Carlos Vázquez Cendón
Professor

Web

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

CARLOS III UNIVERSITY OF MADRID

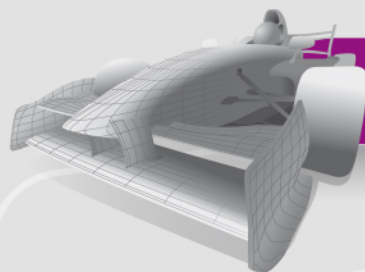
Gregorio Millán Insitute and others

TECHNICAL UNIVERISTY OF MADRID

Department of Applied Mathematics and others

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators



Faculty

FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

UNIVERSITY OF A CORUÑA

Department of Mathematics and others

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

Lino José Álvarez Vázquez
Professor
Web

María Begoña Cid Iglesias
Assistant Professor

Web

María Edita De Lorenzo Rodríguez
Associate Professor

José Durany Castrillo
Professor

José Ramón Fernández García
Associate Professor
Web

Generosa Fernández Manín
Associate Professor
Web

Guillermo García Lomba
Associate Professor

Pablo Izquierdo Belmonte
Doctor

Elena Beatriz Martín Ortega
Assistant Professor

Áurea María Martínez Varela
Associate Professor
Web

Abraham Segade Robleda
Assistant Professor

Manuel Ángel Sobreira Seoane
Associate Professor
Web

Fernando Varas Mérida
Associate Professor

CARLOS III UNIVERSITY OF MADRID

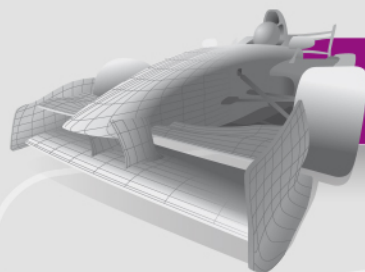
Gregorio Millán Insitute and others

TECHNICAL UNIVERISTY OF MADRID

Department of Applied Mathematics and others

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators



Faculty

FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

UNIVERSITY OF A CORUÑA

Department of Mathematics and others

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

CARLOS III UNIVERSITY OF MADRID

Gregorio Millán Insitute and others

Juan Diego Álvarez Román
Associate Professor
Web

Mariano Álvaro Ballesteros
Assistant Professor
Web

Luis Francisco López Bonilla
Professor
Web

Manuel Carretero Cerrajero
Associate Professor
Web

Óscar Flores Arias
Assistant Professor
Web

Manuel García Villalba
Assistant Professor
Web

Pedro González Rodríguez
Assistant Professor

Manuel Kindelan
Professor

Vadim Kourdioumov
Assistant Professor

Mario Merino Martínez

Assistant Professor
Web

Miguel Ángel Moscoso Castro
Professor
Web

Antonio Sánchez Pérez
Professor

Manuel Sanjurjo
Assistant Professor

Filippo Terragni
Assistant Professor

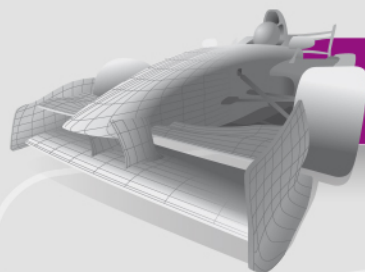
Marcos Vera Coello
Associate Professor

TECHNICAL UNIVERSITY OF MADRID

Department of Applied Mathematics and others

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators



Faculty

FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

UNIVERSITY OF A CORUÑA

Department of Mathematics and others

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

CARLOS III UNIVERSITY OF MADRID

Gregorio Millán Insitute and others

TECHNICAL UNIVERISTY OF MADRID

Department of Applied Mathematics and others

Juan Ramón Arias Pérez
Associate Professor

Antonio Barrero Gil
Associate Professor

Rodolfo Bermejo Bermejo
Professor

Soledad Le Clainche
Lecturer

María Higuera Torrón
Associate Professor

Carlos Martel Escobar
Professor

Juan Ángel Martín
Lecturer

Jeff Porter
Assistant Professor

Laura Saavedra Lago
Assistant Professor

José Joaquín Sánchez Álvarez
Assistant Professor
Web

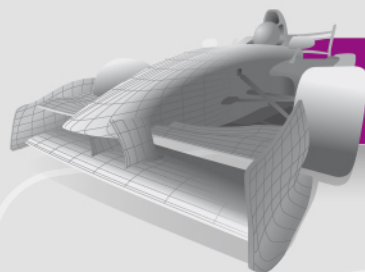
Vassilios Theofilis
Assistant Professor
Web

José Manuel Vega De Prada
Professor
Web

Ángel Velázquez
Professor
Web

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators



Faculty

FACULTY

Our faculty members are renowned professionals with extensive experience in the field of modelling and numerical simulation.

Guests will include specialists in their scientific and/or technical field.

UNIVERSITY OF SANTIAGO DE COMPOSTELA

Department of Applied Mathematics and others

UNIVERSITY OF A CORUNA

Department of Mathematics and others

UNIVERSIDAD DE VIGO

Department of Applied Mathematics and others

CARLOS III UNIVERSITY OF MADRID

Gregorio Millán Insitute and others

TECHNICAL UNIVERISTY OF MADRID

Department of Applied Mathematics and others

OTHER UNIVERSITIES AND RESEARCH CENTRES

Collaborators

Vicente Cutanda Henríque
Associate Professor
(University of Southern Denmark, Dinamarca)

Francisco Javier Fernández Fernández
Assistant Professor
(C.U Defensa. Escuela Naval de Marín)

Carlos Fernández Sánchez
System Administrator
(CESGA)

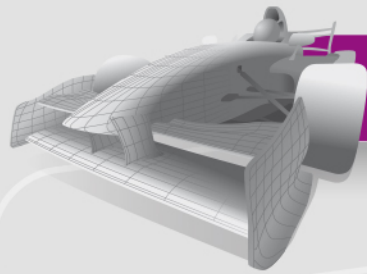
Miguel Ángel Fernández Varela
Directeur de Recherche
(INRIA, Rocquencourt, Francia)

M^a de las Mercedes Fernández Veiga
Risk and Control Rating
(Banco Santander)

Carlos Moreno González
Professor
(UNED)

María Rodríguez Nogueiras
Research Fellow
(IMPA, Brasil)

Virginia Selgas Buznego
Assistant Professor
(Universidad de Oviedo)



M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

www.m2i.es

Relations with Industry

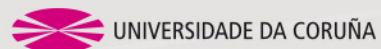
M2i is **strongly active** in its relations with **industry**.



97 European Study Group with Industry
(11-14/11/2013, USC)

ITMATI. Technological Institute for Industrial Mathematics
Instituto de Investigacións Tecnolóxicas, planta -1

[Web: //www.itmati.com/](http://www.itmati.com/)

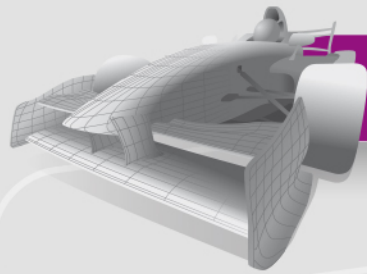


Universida de Vigo



Universidad
Carlos III de Madrid





M2i

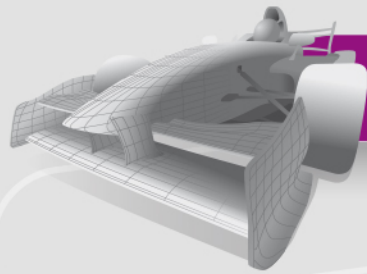
MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Relations with Industry

- Due to the **Workshop on Industrial Problems** we have signed more than **60** agreements with regional, national and international **companies** that collaborate with M2i.
- These companies present problems on which the students and teachers work in the **Workshops on Industrial Problems and on Modelling**.
- Some of these problems may become the subject of the **Master's dissertation**.
- These companies and technological centers also offer **internships** to students.





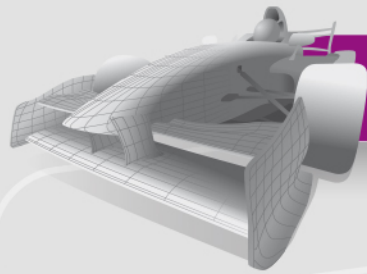
Companies

List of companies with this agreement are listed at:

<http://www.m2i.es/en/?seccion=empresas>

- Biomedicine & Health
- Economics & Finances
- Energy & Environment
- Logistics and transport sectors

Abengoa www.abengoa.com	Confederación Hidrográfica del Miño-Sil www.chminosil.es
Acuanorte www.acuanorte.es	ELINSA www.elinsa.org/
Adatica www.adatica.com	Endesa Generacion, SA www.endesa.es
AFI www.afi.es	Fundación CIDAUT www.cidaut.es
AMES www.ames.es	Fundacion Instituto de Hidraulica Ambiental de Cantabria www.ihcantabria.com/es/fundacionih
AMV Soluciones www.amvsoluciones.com	Fundacion para el Fomento de la Calidad Industrial y el Desarrollo Tecnologico de Galicia www.fundacioncalidade.org
Analistas Financieros Internacionales www.afi.es	Gallega de Mecanizados Electronicos www.gamelsa.com
Aqua Ambiente Servicios Integrales, SA www.aquaambiente.es	GMV Aerospace & Defence SAU www.gmv.com/en
AXA Group Solutions www.axa.es/Seguros/Particulares/seguros.aspx	Grupo Antolin Ingenieria, S.A www.grupoantolin.com
BALIÑO www.balino.com	Grupo Ferroatlantica www.ferroatlantica.es
BANESTO www.banesto.es	Iberdrola Energias Renovables de Galicia, SA www.iberdrola.es
BBVA www.bbva.es	Idealos www.idealos.es
CASTROSÚA www.castrosua.com	Ikerlan S. Coop www.ikerlan.es
Cedervall España, S.A. www.cedervall.com	INDAR www.ingeteam.com/Es.aspx
Centro de Investigacion Forestales de Lourizan www.escuelalourizan.es	Indizen Technologies www.indizen.com
Centro de Observacion y Teledeteccion Espacial SAU www.grupotecopy.es/es/nosotros/organizacion/cotesa.html	Inergy Automotive Systems www.inergyautomotive.com/Pages/Home.aspx
Centro de Supercomputación de Galicia (CESGA) www.cesga.es	Inspiralia www.inspiralia.com
Centro Tecnológico Aimen www.aimen.es	Instituto de Ciencias de la Construcción Eduardo Torroja www.ietcc.csic.es
Centro Tecnológico de Automoción de Galicia (CTAG) www.ctag.com	Instituto de Hidráulica Ambiental "IH Cantabria" www.ihcantabria.com
Château Luchey-Halde www.luchey-halde.com	Instituto de Investigaciones Marinas del Vigo www.iim.csic.es
CIE Automotive www.cieautomotive.com	



M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

Companies

- Biomedicine & Health
- Economics & Finances
- Energy & Environment
- Logistics and transport sectors

Instituto Español de Oceanografía
www.ieo.es

Instituto Tecnológico de Aragón
www.ita.es/ita

Labein Tecnalia
www.tecnalia.com

Magallanes Renovables
www.magallanesrenovables.com

Mestrelab Research
mestrelab.com

Metalurgica Orro
<http://metalurgicaorro.es>

MGI Coutier
www.mgicoutier.fr

N.A.S.A.L.
www.nasalsystems.com/

Navantia, SA
www.navantia.es

Next Limit, Technologies
www.nextlimit.com

Norvento
www.norvento.com

Puerto de Celeiro
www.puertodeceleiro.es

RECSA
www.recsa.com

Russula
www.russula.com

SEAT
www.seat.com

Simpple, SL
www.simpple.com

Sound of Numbers, S.L.
www.soundofnumbers.net

Tecnicas y Servicios de Ingeniería, SL
www.tsisl.es

Tecnologias Avanzadas Inspiralia, SL
www.inspiralia.com

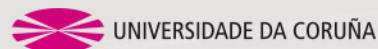
UMANA
www.umanaingenieria.com/biomecanica

UNESPA
www.unespa.es

Unidad de Vehiculos Industriales
www.unvi.es

Vasco Gallega
www.vascogallega.com

Vicus Desarrollos Tecnicos
www.vicusdt.com



Universida de Vigo

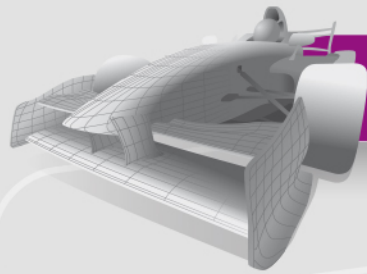


Universidad Carlos III de Madrid



POLITÉCNICA





M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

www.m2i.es



IT technologies

- M2i takes advantage of the IT technologies by using a modern videoconferencing system which simultaneously allows students and teachers of the different M2i sites to connect in **real time**.
- Additionally, the teaching sessions of a large part of the subjects are **recorded [Video lecture]** so that the students can access the classes from home.
- Students have also access to **professional software** during the Master.

COMPANIES

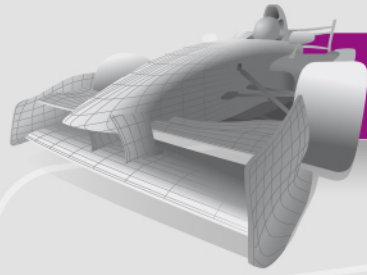
Companies who have lend their software to be freely use in the M2i:



ANSYS Fluent used in Professional software in fluid mechanics.



MIKE used in Professional software in environmental issues.



M2i

MASTER IN INDUSTRIAL MATHEMATICS

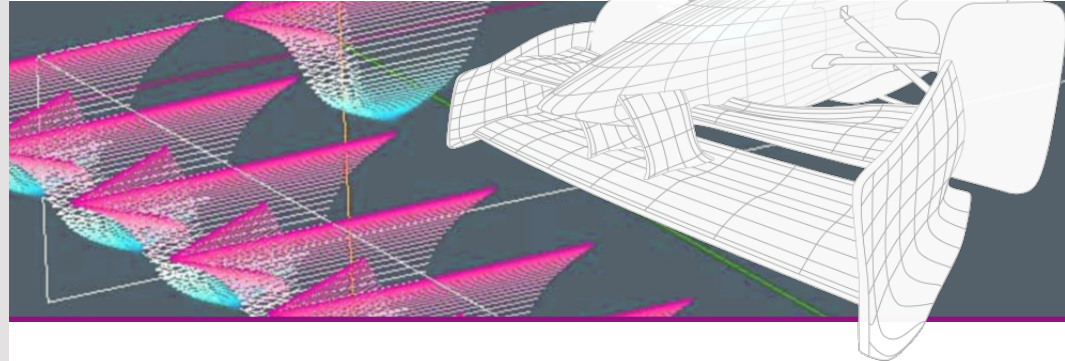
www.m2i.es

[BACK TO MENU](#)

M2i

MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es/en



MASTER IN INDUSTRIAL MATHEMATICS (M2I): PROVIDING A SPECIFIC EDUCATION TO SOLVE REAL PROBLEMS IN INDUSTRY

The Master in Industrial Mathematics (M2I) is an official degree jointly delivered by the University of Santiago de Compostela (USC), University of A Coruña (UDC), University of Vigo (UVigo), Carlos III University of Madrid (UC3M) and Technical University of Madrid (UPM) Since the current academic year 2013/2014.

The M2i duration is 3 semesters and offers two specializations: Modelling and Numerical Simulation.

M2i degree promotes a strong dynamic relationship between the main stakeholders: students, Alumni, faculty members and professionals from industry.

MASTER

Presentation
Admission
Scholarships
Quality control and results

TEAM

Faculty
Coordination
Contact us

STRUCTURE

Modules and subjects
Timetable
Dissertation

PARTNERS

Collaborators
Companies
Alumni

CONNECT WITH US

News
Links
FAQ
Downloads
Disclaimer
Accessibility



UniversidadeVigo



Universidad Carlos III de Madrid



POLITÉCNICA

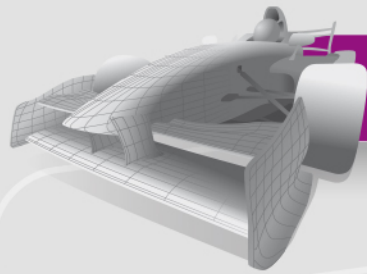


UniversidadeVigo



Universidad Carlos III de Madrid





M2i

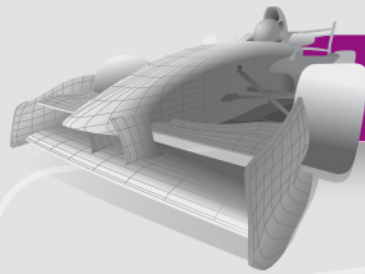
MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Program

- Basic Training (24 compulsory ECTS)
- Modelling Specialization Module [MS] (**) (24 ECTS)
- Numerical Simulation Specialization Module [NSS] (**) (24 ECTS)
- Optional Module (**)
- Master Dissertation (30 compulsory ECTS)

(**) The 12 optional ECTS compulsory can be obtained from any of the non compulsory modules



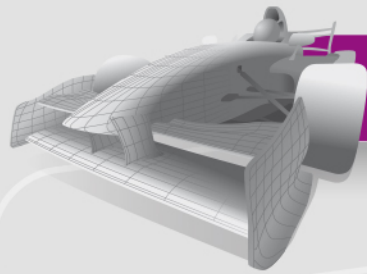
M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Basic Training (24 compulsory ECTS)

- Numerical methods and programming (6 ECTS)
- Ordinary differential equations / Dynamical systems (6 ECTS)
- Partial differential equations (6 ECTS)
- Numerical methods for partial differential equations (6 ECTS)



M2i

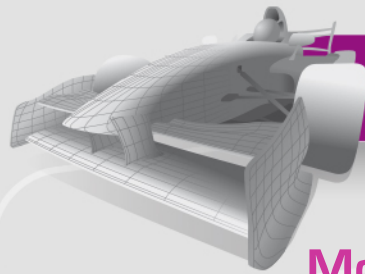
MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Basic Modelling

[Choose 6 compulsory ECTS to obtain the MS and NSS]:

- Fluid mechanics (6 ECTS)
- Solid mechanics (6 ECTS)
- Electromagnetism and Optics (6 ECTS)
- Acoustics (6 ECTS)
- Mathematical modelling in the environment (6 ECTS)
- Mathematical modelling in finance (6 ECTS)



Modelling Specialization Module [MS] (**) (24 ECTS)

Basic Modelling (Choose 6 compulsory ECTS to obtain the MS)

Advanced Modelling (Choose 6 compulsory ECTS to obtain the MS):

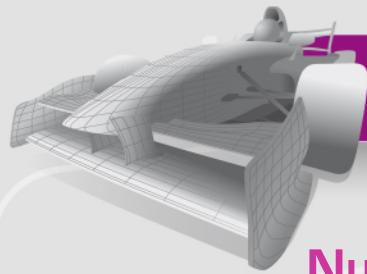
- Fluid Thermal MEMS and Power MEMS (6 ECTS)
- Combustion (6 ECTS)
- Turbulence (6 ECTS)

Perturbation methods (6 compulsory ECTS to obtain the MS)

Issues of Applied Mathematics (Choose 6 compulsory ECTS to obtain the MS):

- Optimization and Control (6 ECTS)
- Variational analysis of partial differential equations (3 ECTS)
- Stability of physical systems (6 ECTS)
- Hydrodynamical stability (6 ECTS)
- Inverse problems and image reconstruction (6 ECTS)

(**) The 12 optional ECTS compulsory can be obtained from any of the non compulsory modules



M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Numerical Simulation Specialization Module [NSS] (**) (24 ECTS)

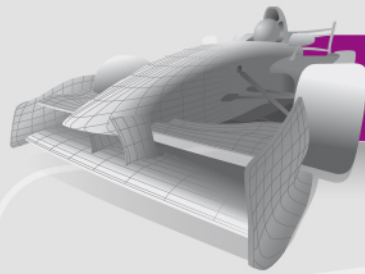
Basic Modelling (Choose 6 compulsory ECTS to obtain the NSS)

Continuum mechanics (6 compulsory ECTS to obtain the NSS)

Professional Software in Numerical Simulation (Choose 12 compulsory ECTS to obtain the NSS):

- Professional software in finance (6 ECTS)
- Professional software in fluid mechanics (6 ECTS)
- Professional software in solid mechanics (6 ECTS)
- Professional software in electromagnetism and optics (6 ECTS)
- Professional software in acoustics (6 ECTS)
- Professional software in environmental issues (6 ECTS)
- Computer-aided design (CAD) (6 ECTS)

[**] The 12 optional ECTS compulsory can be obtained from any of the non compulsory modules



M2i

MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Optional Module [* *]

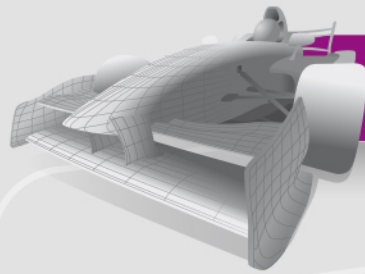
Advanced Numerical Methods

- Stochastic numerical methods (6 ECTS)
- Advanced finite elements (3 ECTS)
- Advanced finite volumes (3 ECTS)
- Boundary element methods (3 ECTS)
- Numerical methods for large systems of equations (3 ECTS)
- Advance Scientific Calculus with Matlab (6 ECTS)

Computation

- Programming in C++ (3 ECTS)
- Parallel Computing (3 ECTS)
- Computer nets and distributed computing (3 ECTS)
- Computer architectures and operative systems (3 ECTS)

[* *] The 12 optional ECTS compulsory can be obtained from any of the non compulsory modules



M2i


MASTER IN
INDUSTRIAL
MATHEMATICS

 www.m2i.es

Master Dissertation (30 compulsory ECTS):

- Workshop on Industrial Problems (compulsory)
- Workshop on Software Engineering (optional)
- Workshop on Modelling (optional)
- Workshop on Projects Methodology (optional)
- Modelling Weeks (optional)
- Internships in Companies / Technological centres (optional)
- Internships in University Departments (optional)

Dissertation: The topic will be chosen by students and supervised by a faculty member from the proposals introduced by the different companies/technological centres in the Workshop on Industrial Problems and the Workshop on Modelling.



Master in Industrial Mathematics (M2i):
An experience with cross-institutional education
in industrial mathematics



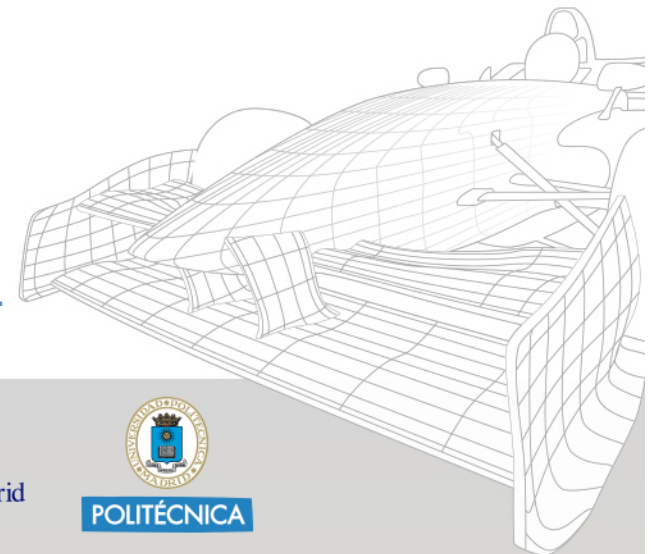
MASTER IN
INDUSTRIAL
MATHEMATICS



Thank you very much for your time and attention!

www.m2i.es/en
info@m2i.es elena.vazquez.cendon@usc.es

Success stories from the ECMI Educational Programme.
Online Industrial Mathematics.



UNIVERSIDADE DA CORUÑA

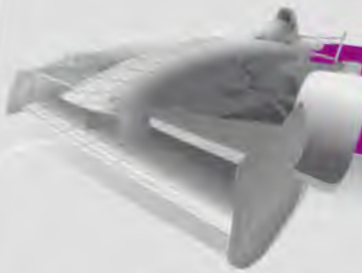
Universidade de Vigo



Universidad
Carlos III de Madrid



POLITÉCNICA



M2i MASTER IN INDUSTRIAL MATHEMATICS

www.m2i.es

M2i MÁSTER EN MATEMÁTICA INDUSTRIAL



www.m2i.es
info@m2i.es



Universidade de Vigo



Universidad Carlos III de Madrid



Universidade de Vigo



Universidad Carlos III de Madrid

