

The MDE Diploma

Model Driven Engineering for Software Management

International Post-graduate Specialization Diploma
Awarded by the French Ministry of Industry.

A Comprehensive Course
on Advanced Software Production, Operation, and Maintenance
Based on Model Driven Engineering.

The MDE International post-graduate specialization Diploma in Model Driven Engineering (MDE) for Software Management is offered by Ecole des Mines de Nantes. Its objective is to train engineers to manage complex projects in various IT fields with the latest cutting-edge modeling technologies.

MDE in a nutshell

Model Driven Engineering (MDE) is changing the way we build, we operate, and we maintain our software-intensive systems. Software models are being increasingly used in most areas of computer science. They allow working at a higher abstraction level and generating the executable programming code only at final implementation stages. MDE provides a new conceptual framework and a set of tools to separate and to combine the multiple aspects and views present in modern complex systems. Several projects using MDE practices are reporting significant improvements in quality and performance. But the human skills necessary to handle these projects are currently not widely available. This diploma intends to contribute filling this gap.

Jobs for Tomorrow and the Future

- The MDE Diploma provides the opportunity to develop specialist knowledge in Model Engineering, a key growth area in the Information and Communication Technologies industry. This can provide competitive advantage in employment and facilitate professional development paths.
- The MDE curriculum has a close relationship with the real world through strong partnerships with industry. It will be conducted completely in English. Students who excel in the Diploma will be offered design, development, or research project opportunities with industry partners. The core teaching staff is supplemented by international leading experts from industry who will act as active adjunct teachers.

- An important part of the programs is spent acquiring in-depth experience of the industrial environment through industrial studies or projects. Most visible tool producers in the MDE field will participate to the program and directly bring their expertise to the MDE students.
- After completion of the program, MDE graduates will find career opportunities in a number of companies like: Large user groups, Bank and financial industry, Government agencies, Software houses, Software editors, Public and Private Research Labs.
- Examples of potential career opportunities in these companies are: Software Engineers with specialized expertise in model engineering, Research and Development Engineers in national or international projects, Enterprise Architects, Software Engineering and Configuration Managers, Requirements Analysts, Team Leaders in new Technology Projects, Development Managers involved in Information System Modernization and Migration.

The MDE Program

(Assuming prior running knowledge of the JAVA programming language.)

- **Module 1: Prerequisites (60h)**
 - Software Development with Eclipse
 - Free and Open Source Models for software development
 - Software Modeling
- **Module 2: Fundamentals (120h)**
 - Fundamentals of Metamodeling and DSLs
 - Theory and Practice of Model Transformation
 - Advanced Model Management: repositories & collaborative development
 - Basic Model Driven Software Development
- **Module 3: Applications of MDE (120h)**
 - Information Systems
 - Embedded Systems
 - Data Engineering
 - Web Engineering
 - Graphical User Interfaces
 - Legacy Reverse Engineering
 - Process Engineering
 - System Engineering
- **Module 4: Management (60h)**
 - Management of MDE Projects
 - Alignment of Business Needs with Technical Platforms
 - Cartography of Information Systems
 - Strategies for Information System Evolution and Modernization
 - Human and Organizational Factors in Transitioning from Previous Technologies
- **Module 5: Internship**
 - A co-op stay in a company or in a lab to work on a MDE project.

A Stimulating Context

One semester of academic coursework (360 hours) at the Ecole des Mines de Nantes (in constant relation with the EMN researchers) combined with seminars, regular visits to successful MDE deployment sites, and group projects. A 6-month internship with a key player in the field (company or lab) to resolve an industrial problem of MDE application.

Student profile

The international MDE program is open to candidates with at least a scientific Master degree or equivalent with industrial experience in computer science.

An ideal study environment

- Nantes is the 6th town in France and has been quoted as "the most liveable city in all of Europe" (TIME Magazine, 22 august 2004). It is only two hours from Paris by TGV and located 50km from the Atlantic coast.
- The area of Nantes is well known for its eagerness in fostering innovation in software engineering and particularly in model driven engineering. Several companies have pioneer record in the area of reverse engineering of legacy systems, software modernization, management of information systems in the banking industry and electronic government services. Nantes is also home to internationally visible small techno-providers. The area hosts a rich and dynamic ecosystem of IT ventures, including important groups in the bank and insurance industry and dynamic techno-providers. MDE will expose students to this exciting environment.

Teaching Team

The courses and projects are run by a team faculty from the Ecole des Mines de Nantes (EMN) and internationally recognized experts in the field under the supervision of Professor Jean Bézivin, lead of AtlanMod, a joint research team between INRIA and EMN.

Practical Information

Start of program: February 2010.

Location: Ecole des Mines de Nantes, Nantes, France

Duration: 11 months

Credit: 60 ECTS

Degree: Post-graduate specialization diploma in Computer Science

Taxation fees: 12000 €

Rate of Studies: Full time with visits to applications sites.

Language of Instruction: English

Financial aid: scholarships available for direct registration, from European bodies, from our international partners, based on excellence. Various possible public and industrial sponsorships.

Applications

Application forms and information on the program are available on the school website:

<http://www.emn.fr/>

Deadline for applications: 15 November, 2009

For more detailed information: MDE_administration@emn.fr

Student contact: mde-admission@emn.fr

Company contact: mde-industry@emn.fr

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