

Maintenance Management Education

Development in maintenance
management and technician education
in Denmark.



Educated as Marine Engineer in 1969.

Had been Rector at Fredericia Marine Engineering College from 1984 to 2006.

Had developed and been director at Center of Asset Maintenance management I Denmark from 2006 to 2009.

Had been member of member of European Certification Committee in EFNMS from 1996 to 2000.

Had been member of European Training Committee in EFNMS from 2000 to 2008 .

Had written many articles and papers about maintenance. The biggest one is the most used maintenance book (475 pages) in Danish.

Senior Consultant at Centre of Asset Maintenance Management from 2009.

Main developer of Maintenance Management education in Denmark

Chairman of the presidium of the Danish Maintenance Society from 2007.

The Danish representative in European federation for National Maintenance Societies (EFNMS) from 1995.

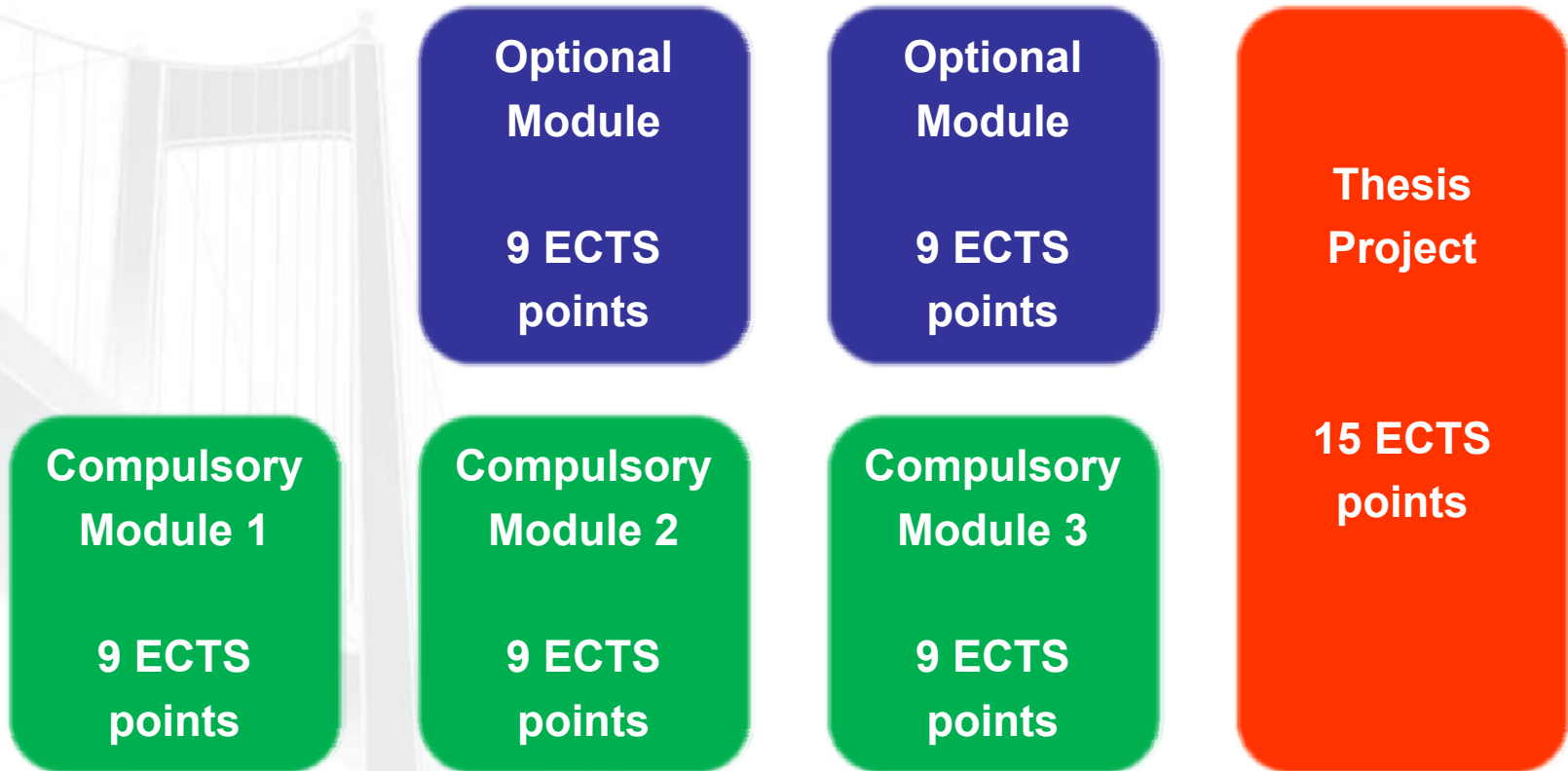
Member of the Health, Safety and Environment committee in EFNMS from 2009.

He is 64 years old, married and have two married children with 7 grandchildren.

Maintenance Management Education

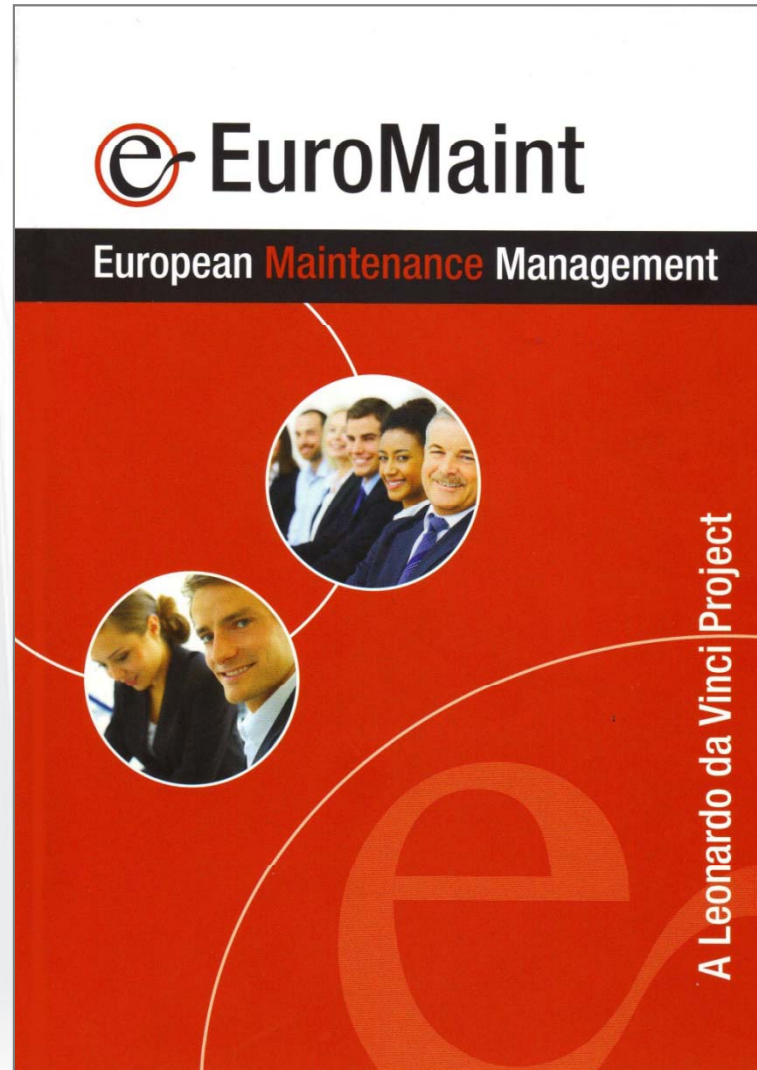
Development in maintenance management and technician education in Denmark and Europe.

- 1994: The Danish Marine Engineers Organisation initiated a qualification project around maintenance management – DAMASK
- 1993/98: Requirements for European Expert in Maintenance Management – EFNMS
- 1999: The Bologna process for the future education structures in more than 28 countries.
- 2003: In cooperation with VIA-university, we developed the education we are running to day.
- And what next?

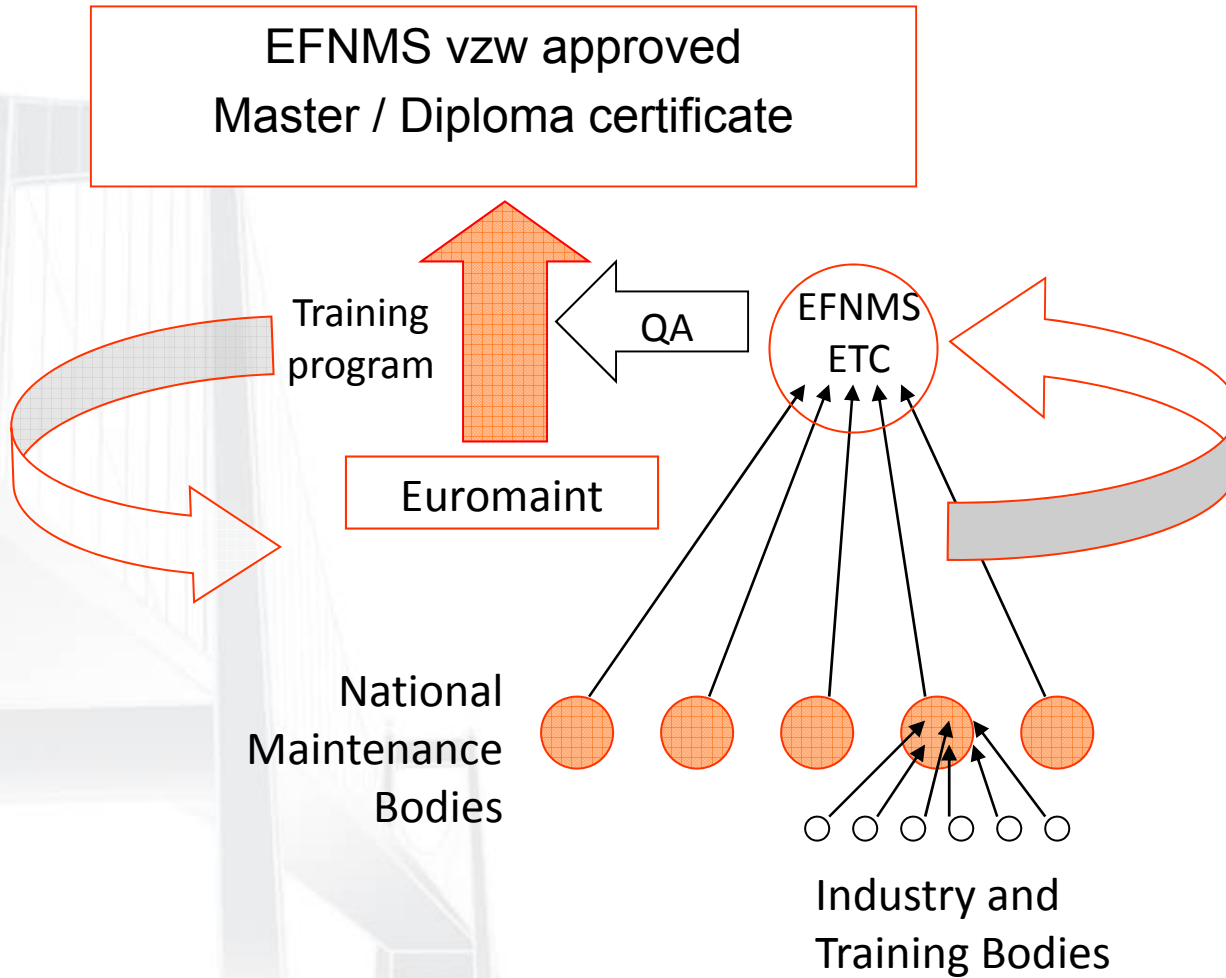


4 semesters of $\frac{1}{2}$ year duration, total 60 ECTS points

The EuroMaint project



The assessment structure



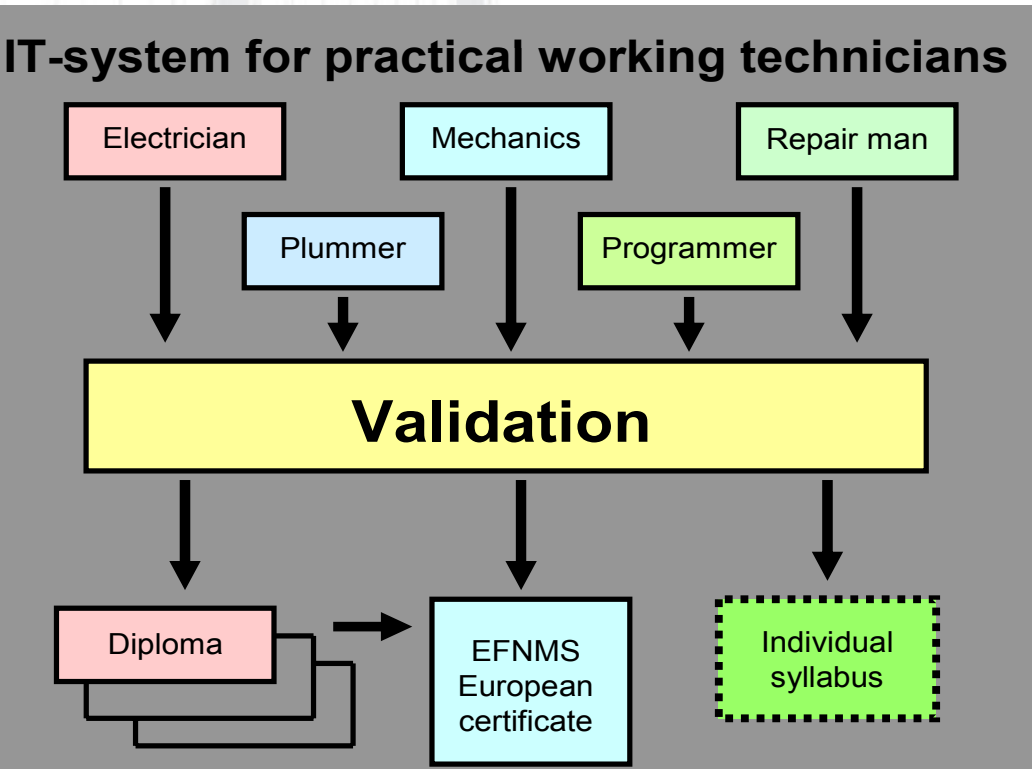
Maintenance Technician Education

Development in maintenance management and technician education in Denmark and Europe.

Why standard and test system

Industry needs more multi skilled Maintenance Technicians.

For example Trouble Shooters with some basic knowledge in programming must be broadening to understand and take care of mechanical and electrical parts.



- The server based validation system runs on commercial conditions.
- Every test is paid by a fee.
- The test is strict neutral and free from direct influence from unions, employers, governmental organisations and schools.
- The general knowledge in maintenance is based on European Federation of National Maintenance Societies –
 - EFNMS** – specification for Maintenance Technician.
 - This is a “European standard”.
- The other subjects are the normal technical subjects used in industry.

General Competences

- 1.0 Corporate/Company Environment
- 1.1 Work Planning
- 1.2 Team Working and Communications
- 1.3 *English Language*
- 1.4 Information Technology
- 1.5 Training and Instructions
- 1.6 Quality Assurance
- 1.7 Environment
- 1.8 Automation
- 1.9 Occupational Health and Safety

Task Related Competences

- 2.1 Maintenance Objectives, Policies and Strategies
- 2.2 Maintenance Concepts and Methodologies
- 2.3 Restoration Techniques
- 2.4 Maintenance Terminology
- 2.5 Partnering and Contracting
- 2.6 Laws and Regulations
- 2.7 Condition Based Maintenance
- 2.8 Fault Finding Techniques
- 2.9 Improvement Concepts and Techniques
- 2.10 Documentation Management
- 2.11 Spare Parts Management
- 2.12 Materials Technology

Technical subjects

- 3.1 Mechanics
- 3.2 Hydraulics
- 3.3 Pneumatics
- 3.4 Bearings
- 3.5 Welding

- 3.6 Non Destructive Testing
- 3.7 Heat treatment
- 3.8 Vibration techniques
- 3.9 Tribology

- 4.1 Ventilation
- 4.2 Water
- 4.3 Sewage
- 4.4 Heating
- 4.5 Gas

- 5.1 Electro techniques
- 5.2 Electrical safety
- 5.3 Power distribution
- 5.4 Electronics
- 5.5 Programming

The training bodies



The students



The companies

