

# Maintenance Management Education

Development in maintenance  
management education in Denmark.

# Svend Aage West



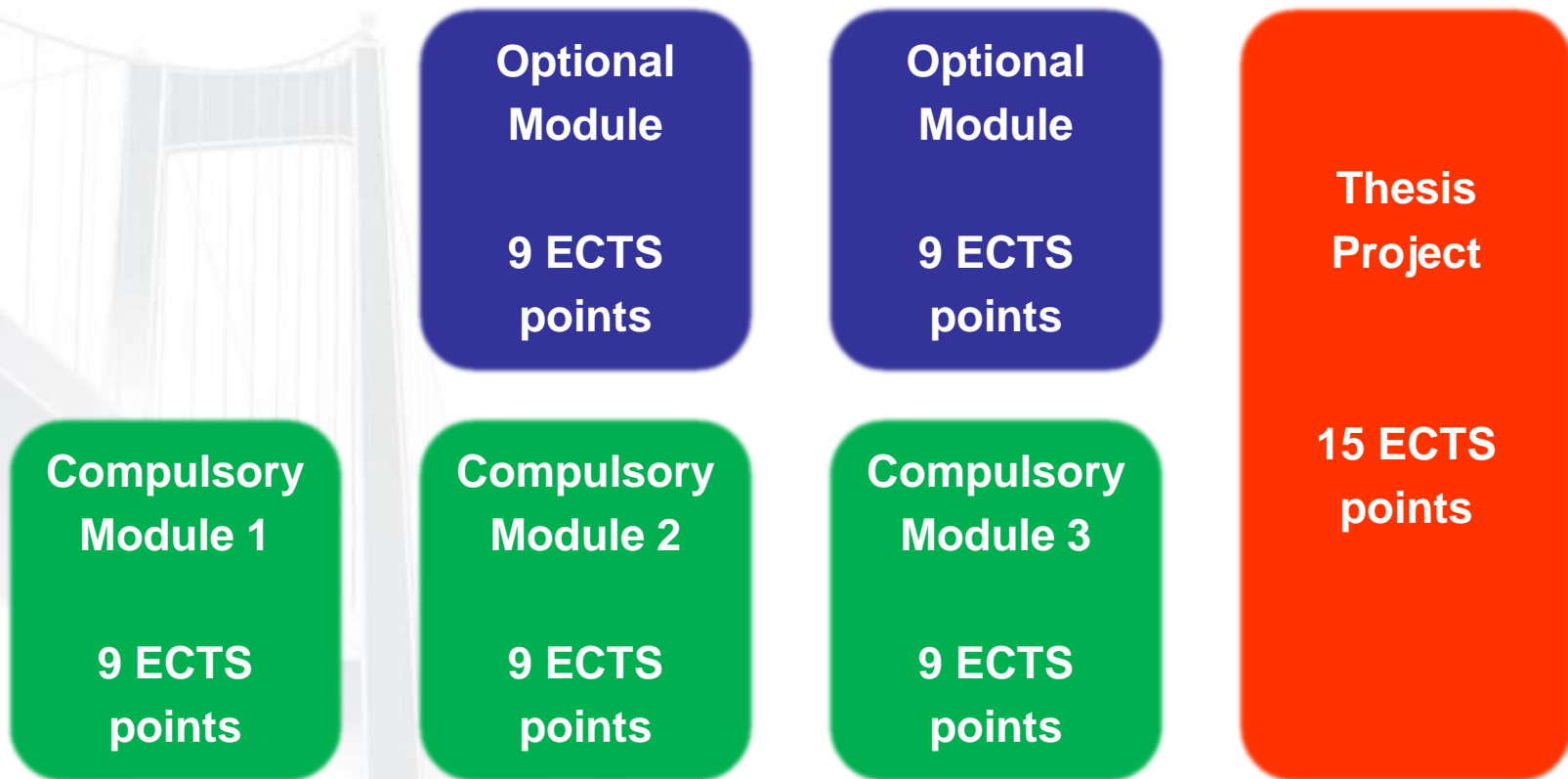
- ***Educated as Marine Engineer in 1969.***
- ***Had been Rector at Fredericia Marine Engineering College from 1984 to 2006.***
- ***Had developed and been director at Centre of Asset Maintenance management I Denmark from 2006 to 2009.***
- ***Had been member of member of European Certification Committee in EFNMS from 1996 to 2000.***
- ***Member of European Training Committee in EFNMS from 2000 to 2008 .***
- ***Member of European Certification Committee in EFNMS from 1998 to 2002 .***
- ***Had written many articles and papers about maintenance. The latest one is the most used maintenance book in Danish (475 pages).***
- ***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 steering committee of World Maintenance Forum.***
- ***Member of the Health, Safety and Environment committee in EFNMS from 2009.***

- 1994: The Danish Marine Engineers Organisation initiated a qualification project around maintenance management – DAMASK
  - 1993/98: Requirements for European Expert in Maintenance Management – EFNMS
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- 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?

# The European Expert in Maintenance Management

- **1999: The first certified person in Denmark – Tom Svantesson.**
- **2002 ? : Working group for preperation to be certified as European Expert in Maintenance Management.**
  - **Leading of the working group: Centra of Asset Maintenance.**
  - **The certification: EFNMS (DDV and UTEK)**
- **2003: Developed a 1 year education for the preparation**
- **2004: “Closed it down” and developed Technical Diploma in Maintenance Management at bachelor level.**
- **Number of certified persons: 39**

# The structure



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

## Compulsory:

1. Reliability, techniques and methods in maintenance
2. Management, organization, economy and information in maintenance
3. Management and coaching in relation to maintenance
4. Final project and thesis in maintenance management

## Optional:

1. Condition monitoring and techniques for optimizing maintenance
2. Facilities management – Planned systematic maintenance of buildings
3. Maintenance concepts
4. Project Management – methods and tools
5. Personal development of the manager
6. Energy and Environment management
7. Management and Coaching

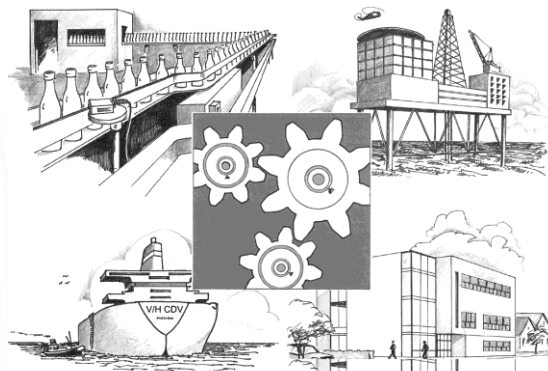
(Number of examined persons: 39)

- Vedligehold ved Svend Åge West
- Human Error by James Reason and Alan Hopps
- Asset Maintenance Management by Alan Wilson
- Metode i projektarbejde ved Helle Algreen-Ussing m.fl.
- I spidsen for forandringer ved John P. Kotter
- Ledelse i praksis ved Hans Jørgen Skriver
- Teamwork – metoder til effektiv samarbejde ved Michael A. West
- Ledelsesgrupper – Betingelser for succes og fiasko ved Belbin
- Coaching – læring og udvikling ved Reinhard Stelter
- Grundbog i projektledelse ved Hans Mikkelsen m.fl.
- Power i projekter og portefølger ved Mette Lindegaard m.fl.
- Tanker om organisationsændringer m.m. ved Ry Nielsen
- Relationer i organisationer ved Gitte Haslebo
- Innovation gennem netværk m.m. ved Anders Drejer m.fl.
- Byggeri, fra vision til virkelighed ved Per Anker Jensen
- Håndbog i Facility Management ved Per Anker Jensen
- Best Practise i Norden ved Per Anker Jensen



- Danfoss
- Grundfoss
- Maersk companies.
- Novo Nordic
- Novo Zymes
- Lundbeck
- Nordic Sugar
- Danisco
- Cheminova
- Dong Energy
- Wattenfall
- NRGi Rådgivning
- Dematic
- Thisted varmforsyning
- Herning Kommune
- Forsvaret I Aalborg
- Aabenraa fjernvarme
- Storstrømmens sygehus
- Langå Renseanlæg
- Nybro Gasbehandling
- Nukissiorfiit

- Copenhagen ZOO
- The Royal Library
- Copenhagen University
- Carlsberg
- Man B&W diesel
- Bang og Olufsen
- Energi Horsens

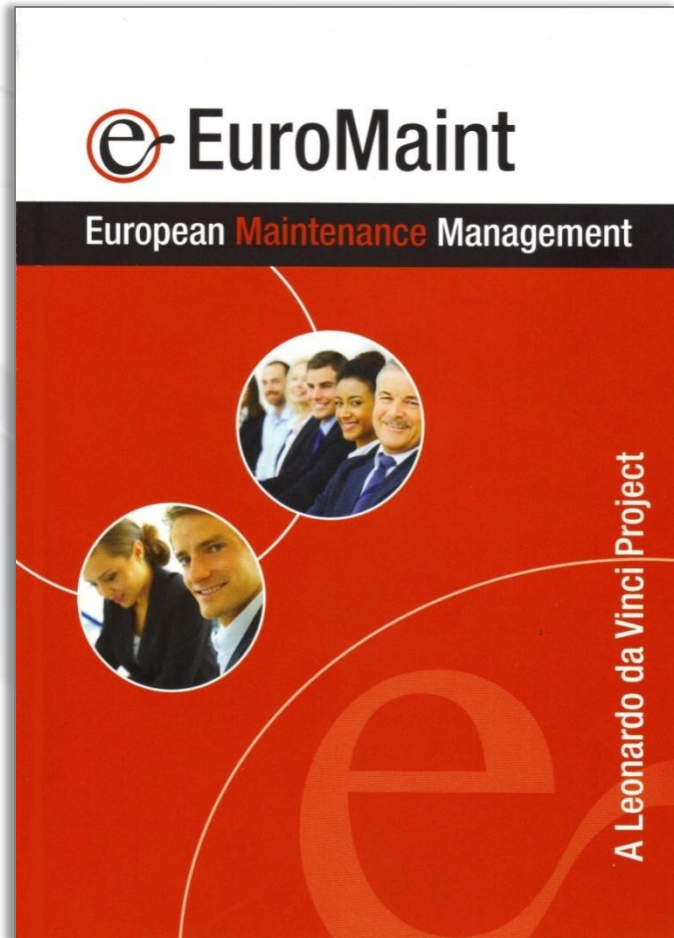


- The Royal Brewery
- Danish Crown
- Arla Foods
- Odense Vandselskab
- Lantmännen Unibake
- Crawford Production
- Sauer Danfoss

- BaneDanmark
- Shell
- Statoil
- The Royal Army
- DTU
- Kattegatcentret
- Rahbekfisk
- Spillevandscentret Avedøre
- Ib Andresen Industri
- Wicotec
- Tetra Pak Hoyer
- Babcockwilox Vølund
- Statens Serum
- Vest-Wood Eesti
- Erhvervs Akademi Vest
- Forsvarets bygningstjeneste
- GASA Nordgrønt
- Energinet
- Viteq
- Carletti
- Carpenter
- Kaltech Gearservice
- Chr. Hansen
- Vestforbrænding
- Grønland Lufthavn

# What next – short and long terms?

- Implementing the recommendations from EuroMaint.
  - Develop an education in Health, Safety and Environment.
  - Offer the educations at both bachelor and master level.
  - Formalizing teamwork between providers of maintenance and HSE education at bachelor and master levels. FMS/CDV – VIA – HSU.
  - Teamwork between providers of maintenance education in Europe through EuroMaint in the field.
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- Accreditation of education and examination in the systems of both the European system and The EFNMS system.
  - Teamwork between providers of maintenance education in Europe through EuroMaint in the field.



- Aims

- Listing competencies
- International consensus
- Personal competence plan
- Educational materials
- Integration in the European qualification-system

<http://www.euromaint.hu.nl/images/Booklet%20EuroMaint.pdf>

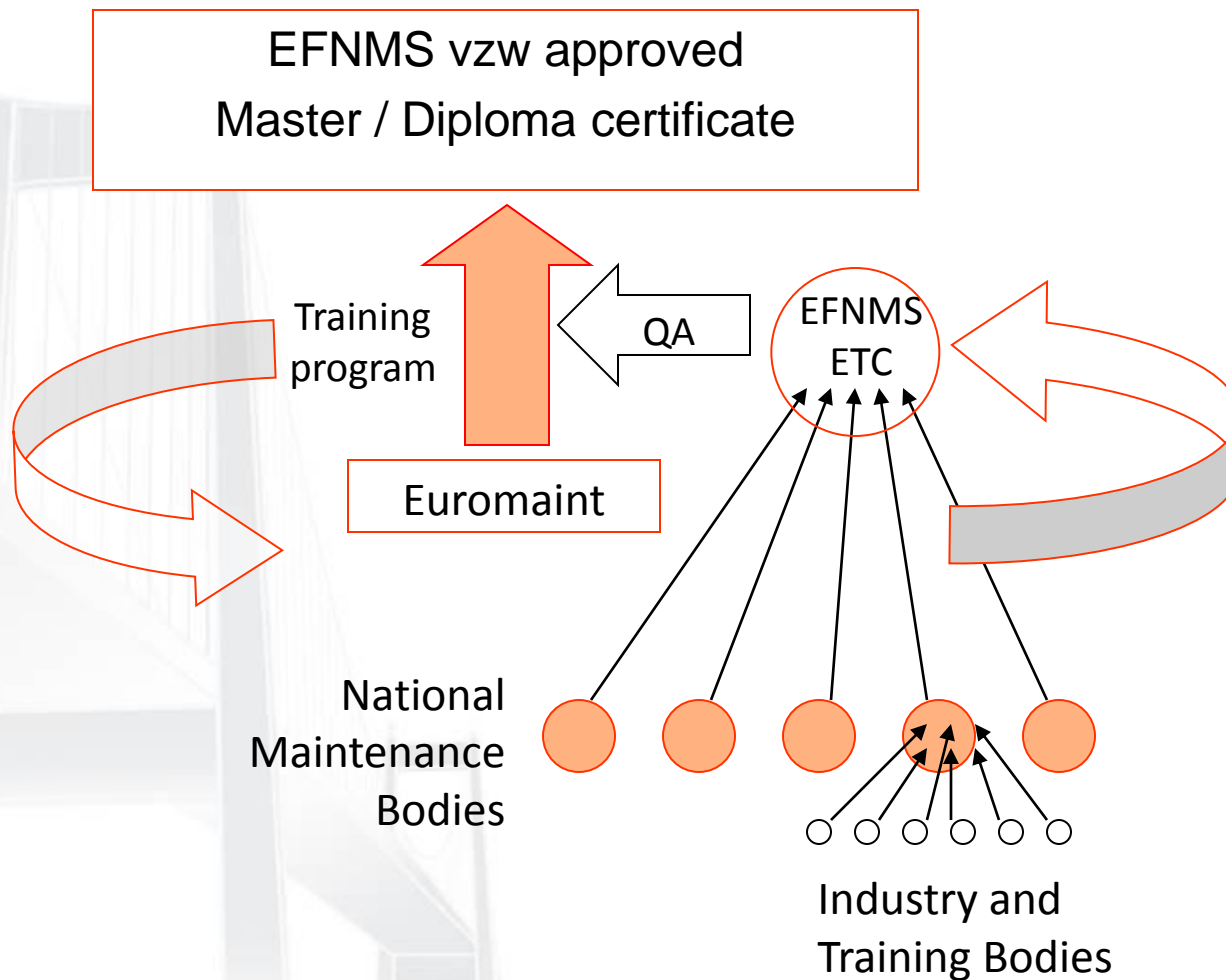
## Master Course:

- A. Business administration
- B. Asset management
- C. Integrity management (Risk assessment, HSE)
- D. Maintenance management (Methodologies)
- E. Continuous improvement
- F. Information management
- G. Leadership, human resources and organization
- H. Academic and personal skills and social competencies
- I. The thesis project: A dissertation about a maintenance management topic

Entry: Bachelor degree

Study hours: 1680 (60 ECTS)

# The assessment structure



## The training bodies



## The students



## The companies

