

## SOME EUROPEAN INITIATIVES IN REQUIREMENTS OF COMPETENCE IN MAINTENANCE

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### ABSTRACT

There are some ongoing efforts in Europe regarding the need of competence in maintenance.

- The European Federation of National Maintenance Societies, EFNMS, has adopted competence requirement specifications for Maintenance Management, for Maintenance Supervision and for Maintenance Technician Specialists.
- The European Standardisation organisation CEN has published a Technical Report on Qualification of Maintenance Personnel.
- The European Commission has via the Leonardo da Vinci funding sponsored a number of development project in the field of Education, Training and Validation of Competence in Maintenance.

This paper will explain all the efforts mentioned above and also demonstrate result from the development projects.

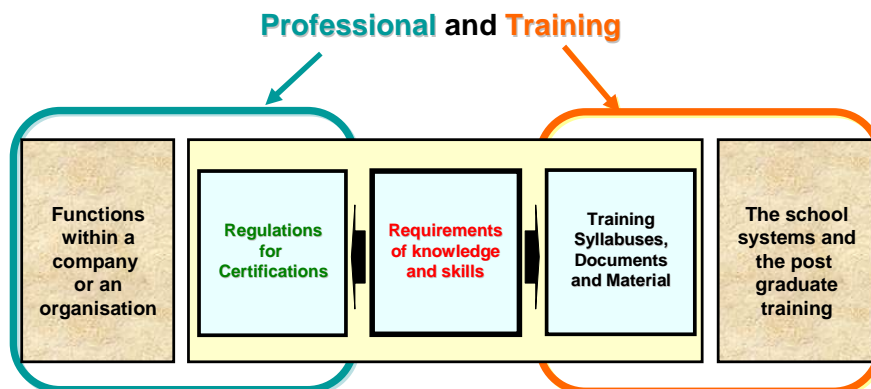
### KEYWORDS

Competence Requirements, Competence Validation, Competence Training

## REQUIREMENTS OF COMPETENCE IN MAINTENANCE

### From Requirements to Validation and Diplomas/Certificates

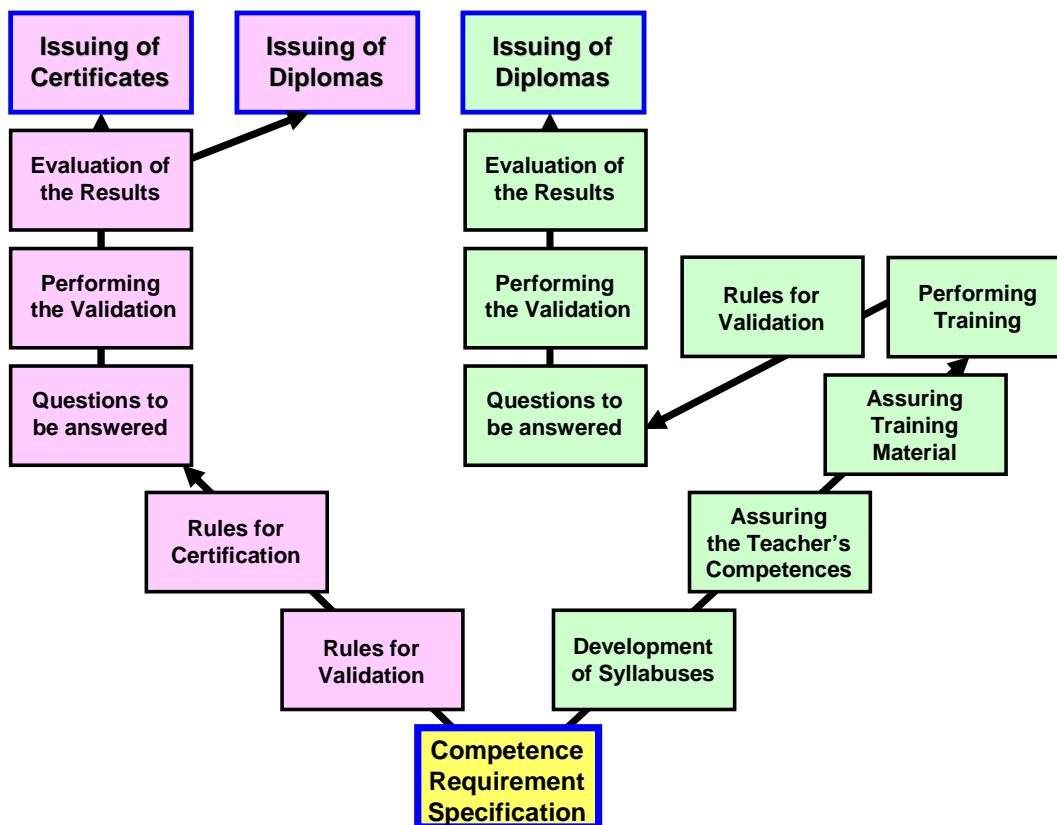
There are a number of steps to be performed before the process is complete for usage. In summary this can be looked upon as the Professional way and as the Training way.



The base for the two ways is the development of the Competence Requirement Specification. This specification has to be in accordance with the requirements for the professional activities or functions.

The Professional way ends in the issuing of a Certificate or a Diploma, and consists of the following steps:

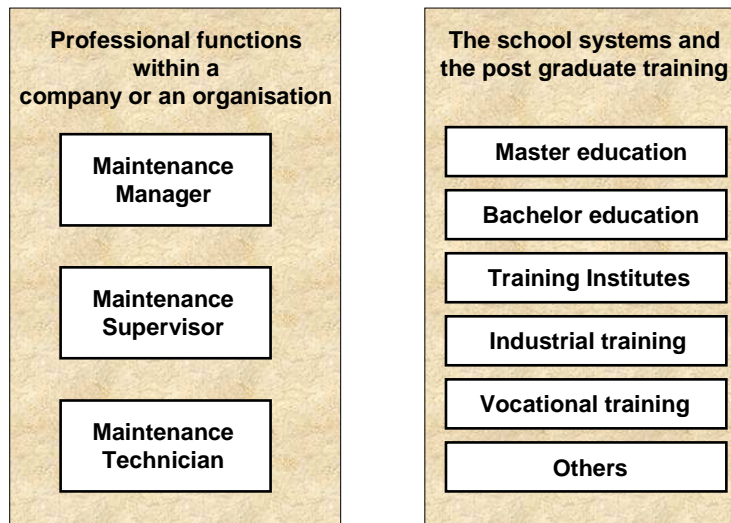
- The Rules for the Validation and Certification of the Competence, including the minimum result which has to be achieved to become in conformity with the Competence Requirement Specification
- The Development of the Questions to be answered in the test
- The Evaluation of the Results for each candidate
- The Issuing of the Validation Diplomas and the Certificates



The Training way ends in the issuing of a Diploma, and consists of the following steps:

- The development of the actual Syllabuses, depending upon the type of training
- The assuring of the Teacher's competence and the suitable Training Material
- The performing of the Training
- The Rules for the Validation of the Competence, including the minimum result which has to be achieved to become in conformity with the Competence Requirement Specification
- The Development of the Questions to be answered in the test
- The performing of the Validation
- The Evaluation of the Results for each candidate

- The Issuing of the Validation Diplomas



## The Requirements

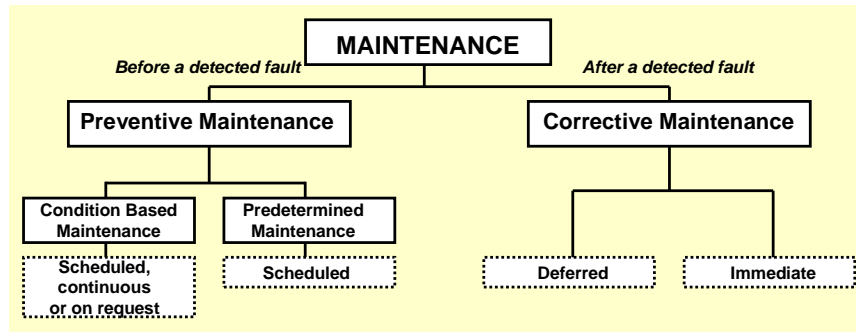
The European Federation of National Maintenance Societies, EFNMS – consisting of 21 National Maintenance Societies – has adopted competence requirement specifications for Maintenance Management, for Maintenance Supervision and for Maintenance Technician Specialists.

**The European Federation of National Maintenance Societies**

The Certification is valid for 21 countries in Europe. Countries with different languages, working conditions, culture, etc

| The Member Societies |                 |
|----------------------|-----------------|
| AEM                  | Spain           |
| AFIM                 | France          |
| AIMAN                | Italy           |
| APMI                 | Portugal        |
| BEMAS                | Belgium         |
| DDV                  | Denmark         |
| DVS                  | Slovenia        |
| GFIN                 | Germany         |
| HDO                  | Croatia         |
| IAM                  | Great Britain   |
| KPY                  | Finland         |
| MEETA                | Ireland         |
| MFS                  | Switzerland     |
| NFPV                 | Norway          |
| NVDO                 | The Netherlands |
| UTEK                 | Sweden          |
| SSU                  | Slovakia        |
| DOTS                 | Serbia          |
| ČSPÚ                 | Czech Republic  |
| PN-TTE               | Poland          |
| MFA                  | Austria         |

These EFNMS Specifications have been used by the European Standardisation organisation CEN and published as Technical Report (TR 15628) on Qualification of Maintenance Personnel. To being able to communicate the requirements that are fully understandable, it is important to use the Maintenance Terminology according to the European Standard CEN, EN 13306. Here below is an example from the standard.



As the EFNMS Specifications are accepted by the Maintenance Professionals in 21 countries in Europe and are the content of a CEN Technical Report, these specifications are recommended to be used as the base for the process of validation and getting the diplomas or the certificates.

At the moment the EFNMS Specification for Maintenance Management and the Specification for Maintenance Technician Specialist are in use. The EFNMS Specification for Maintenance Supervision has only been used for a test validation and is at the moment subject for revision.

## **RULES FOR VALIDATION, DIPLOMAS AND CERTIFICATION IN THE PROFESSIONAL AREA**

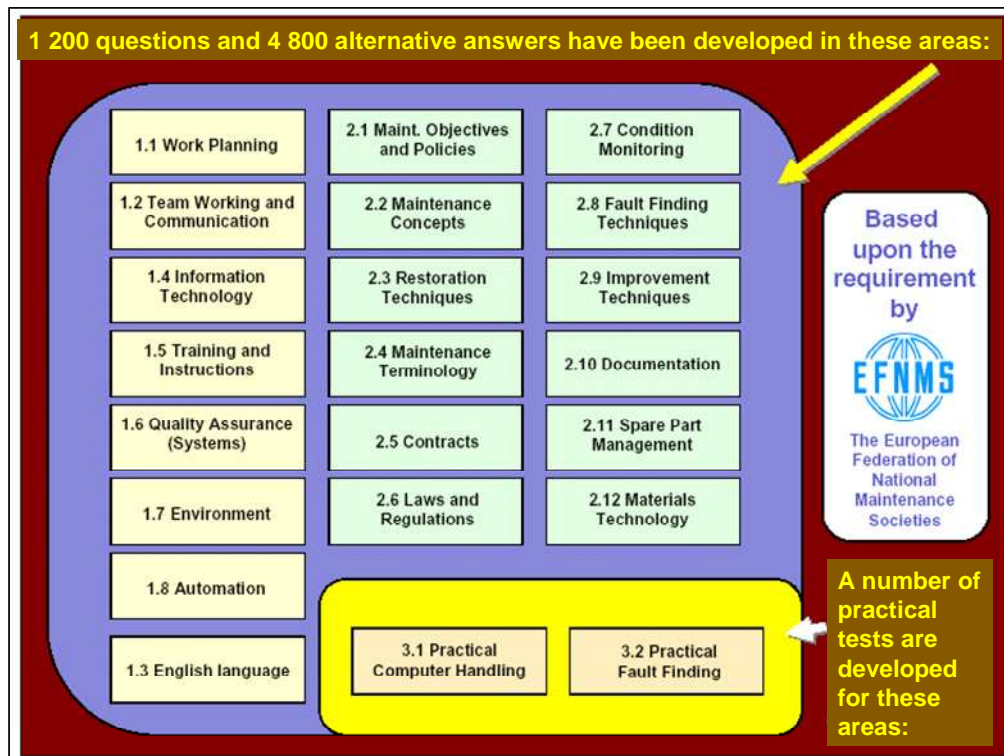
The EFNMS has developed and adopted the Rules for Validation and Certification of Maintenance Professionals, which have been in use since 1993. These rules have been slightly amended since then, to be in accordance with the “General requirements for bodies operating certification of persons” – the standard EN ISO/IEC 17024:2003.

In the ISO standard it says that “The certification body shall not offer or provide training, or aid others in the preparation of such services, unless it demonstrates how training is independent of the evaluation and certification of persons to ensure that confidentiality and impartiality are not compromised”.

## **A RESULT FROM THE DEVELOPMENT PROJECTS**

Both in the Management area and the Technician area there have been written examinations / validations. However, since the beginning of 2008 a computer system – ValidMaint – is developed for Validation of the Competence among Maintenance Technicians. Six European countries participated in this development. The development was sponsored by Leonardo da Vinci. A result of a ValidMaint validation can be a Recommendation for competence development in certain areas, or an EFNMS Certificate as a European Maintenance Technician Specialist.

The ValidMaint has got 1 200 questions covering the 19 specified areas of competence. For each area 4 alternative answers are developed. One of them is right and the other three are almost right, but wrong. The individuals taking the validation get 120 questions by random selection.



## SOME ONGOING DEVELOPMENT PROJECTS

The European Commission has via the Leonardo da Vinci funding sponsored a number of development project in the field of Education, Training and Validation of Competence in Maintenance.

### TRAIN IN MAIN (TRAINING Material IN MAINTenance)

The project activities are

- Business and research literature review on Maintenance Management
- Training needs in Maintenance
- Curriculum and training model conception
- Development of training material & Self-audit Maintenance tools
- Organise pilot training seminars – Evaluation and SWOT analysis
- Design & Update of the Maintenance Management Portal
- Dissemination and exploitation of project results (Valorisation)

The promoter and the Co-ordinating organisation for the project are from Greece. The other partners are from Latvia, Sweden, United Kingdom, Bulgaria and Lithuania.

This is a two years project which will end in September 2008.

### **EuroMaint (European Maintenance: Professional Skills for Maintenance Managers and Maintenance Engineers)**

The project activities are

- Determination of competences on national level
- Determination of competences on European level
- Educational products
- Personal Competence Development Plan
- Assessment and Qualification
- Valorisation: Dissemination and commercialization
- Valorisation: Evaluation and monitoring of the effect

The promoter and the Co-ordinating organisation for the project are from The Netherlands. The other partners are from EFNMS, Czech Republic, Denmark, Italy, Romania, Sweden, Slovenia and United Kingdom.

This is also a two years project which will end in September 2008.

### **iLearn2Main (Industrial Training System for Modern Enterprise Maintenance)**

The project activities are

- VET teacher-learner needs analysis
- Courseware Specification and Design
- Learning Toolkit
- Learning Glossary and Content Development
- Pilot Training, Dissemination & Exploitation

The promoter and the Co-ordinating organisation for the project are from The United Kingdom and Greece respectively. The other partners are from Latvia, Romania and Sweden.

This is a two years project which will end in September 2009.

## **CONCLUSIONS**

There is at the moment an interesting trend of development in the maintenance field for training, validation and certification. Hopefully this will increase the understanding of the importance of investment in efficient and cost-effective maintenance.

## **References:**

1. J. Franlund *The easy way to understand some of the general terms within Maintenance* 2006
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