Swedish Society for Biomedical Engineering and Medical Physics

www.mtf.nu

Certification of Clinical Engineers in Sweden

Björn Wändel
Head of Clinical Engineering
in County Council of Gävleborg, Sweden

Certification Committee member
Swedish Society for Biomedical Engineering
and Medical Physics

Nils-Erik Pettersson, Biomedical Engineering, Örebro Sweden
Per Ask, Biomedical Engineering, Linköping University, Sweden
MBEC2014 09 08 Dubrovnic, Croatia

Introduction

- Information technology integrated in the medical equipments and – systems

- New challenges in technical safety and increased focus on patient safety in health care sector

=> Use of a certification procedure to inspire Clinical engineers to continue their professional development

- Need for Resilience engineering to handle the Unexpected …

www.mtf.nu

How the Certification is performed

- Swedish Society for Biomedical Engineering and Medical Physics started 1956 – about 800 members.
- Certification committee started 1994
- Two levels of Certification
- Requirements besides the exam

Certification of clinical engineers at two levels

1. ~ level of a Bachelor degree in engineering

2 ~ level of a Masters degree in engineering

Certification is performed by the Certification committee

Requirements besides the exam

- Courses in biomedical or clinical engineering and medicine and related subjects corresponding to at least 30 credit points/ 20 “credit weeks”.
- University courses / courses given by other organizations / courses by companies. The credit points are assigned to each course by the committee.
- Courses corresponding to maximally 15 credit points/“ 10 credit weeks” can be part of the exam but at least 15 credit points should be part of a continuing education.

- At least 3 years on the job training as clinical engineer supervised by an experienced and preferably certified clinical engineer.

Certification of Clinical engineers

Credit points, ECTS and years of working experience

Certification

≥ 30 ECTS

≥3 years of practice

15 credit points from ground level education in Biomedical Engineering

Collect ≥ 15 ECTS

Courses in biomedical or clinical engineering and medicine **≥ 15 ECTS**

Subjects related to technological methods **≥ 15 ECTS**

1 Academic year is equal to 60 ECTS-credits

The certification committee

Chairman - presently a lawyer from a governmental health care organization

2 university professors
2 certified clinical engineers
2 deputy members (certified clinical engineers)

Two yearly applications/meetings

Certified Clinical engineers

The certification has been ongoing since 1994

- 704 applications (- 2014 06 31)
- 306 persons certified at the “Bachelor degree level”
- 89 persons certified at the “Master degree level”

Future challenges

The need for Continuing **P**rofessional **D**evelopement

The technological development in the medical area is very fast and there are we need to have continuing development of ourselves.

Objectives for clinical engineers to develop themselves and the clinical engineering

- meet new interesting challenges in the biomedical area…
- be more specialized
- deal with research projects together with other professions in the health care sector
- influence new students to study biomedical engineering
- …

Introduction of the new level - Specialist certification

A program to make it possible to become a Specialist in Clinical engineering.

Two parallell tracks; bachelor - and masters degree level

At least 2 more years experience as Clinical engineer in the specialist area after Certification

Courses in the specialist area – at least 30 more credits including at least 15 credits in the specialist area.

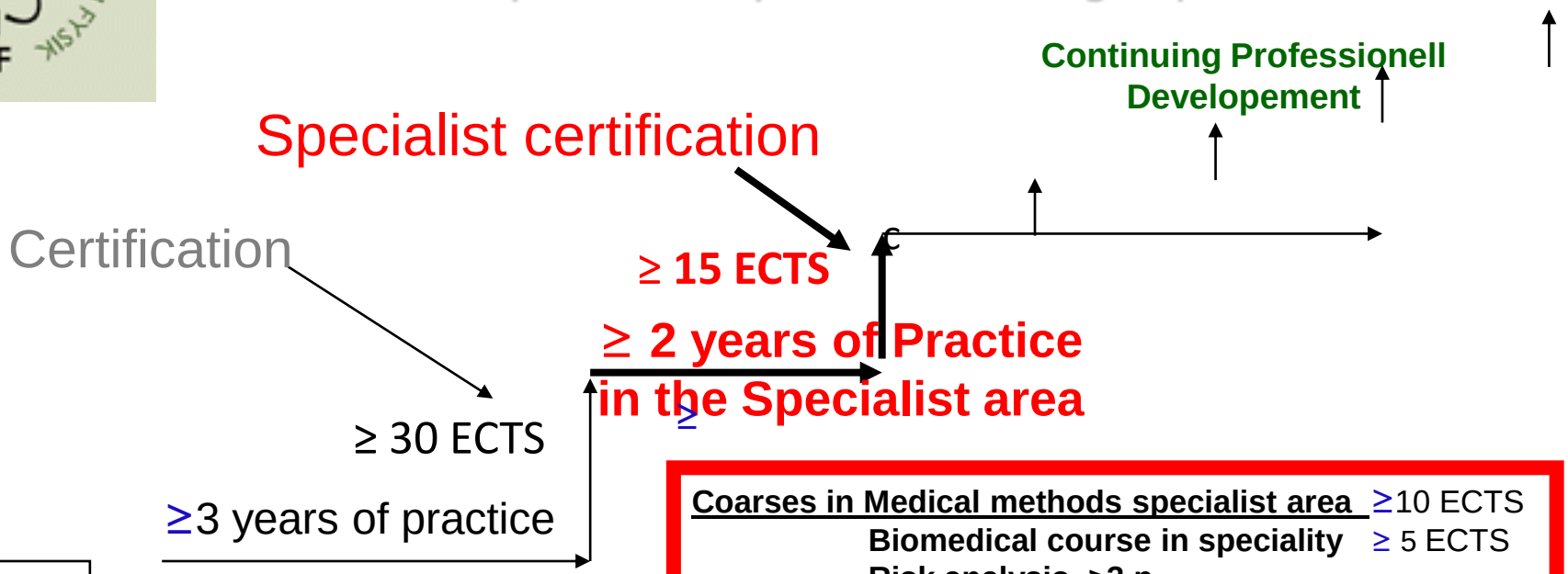
Example of specialist area is: Medical Imaging, Intensive care, Computers in health care, …

Objectives of a Specialist certification

- Create a structure for competence development for Clinical engineers
- To market education in biomedical engineering
- Cooperation between the Biomedical engingineering in the health care sector and the Academy/Industry researching
- …
- …

Specialist Certification

Credit points and years of working experience



15 credit points from groundlevel Education in Biomedical engineering

Collect ≥ 15 Cp

Coarses in Medical methods specialist area	≥10 ECTS
Biomedical course in speciality	≥ 5 ECTS
Risk analysis >3 p	
Technological methods in the speciality	≥ 10 ECTS
Technology in the Specialist area	≥ 5 p
Riskanalysis >3 Hp	
EMC + environment demands	
Signal in the speciality	
Informatik	≥ 5 ECTS
Regulatory block	≥ 5 ECTS

1 Academic year is equal to 60 ECTS-credits

Harmonizing Education programs

Ongoing discussion with the universities in Sweden, with programs in Biomedical engineering, to try to compare their courses

Need to harmonize relevant courses in the programs

Expectation from Clinical engineering departments in the Health care sector and the National Board of Health and Wellfare

Summary

Process for Certification of Clinical engineers

- Need for
  - activities to make it more interesting for students to study Biomedical engineering
  - making the role of Clinical engineering more attractive
  - Continuous Professional Development in Biomedical- and Clinical Engineering

New Certification process for Specialist Clinical engineers

  - In similarity with Physicists, Nurses, Physicians in the hospitals in Sweden

www.mtf.nu

- Thank you!