SMPE/e mission: “To advance health care through technology by training academic professionals in medical physics and engineering”

Location: TU/e - Eindhoven
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SMPE/e of the Eindhoven University of Technology (TU/e) provides Master- and Post-master education for (biomedical) engineers in Health Care and Industries.

Our 2 hospital-based university-managed PDEng programs lead to
• Qualified Medical Engineer (QME)
• Clinical Informatics (CI)

SMPE/e offers courses
• Introduction in Clinical Informatics
• Management & Organization in Health Care
• Medical Ethics
• Physics and Physiology behind Medical Technology
• Safety & Risk Analysis
• Laws & Regulations

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OBJECTIVE OF THE COURSE

With this course the student will obtain an understanding of the physical principles and the medical applications of the most frequently used medical equipment in hospitals - outside the imaging domain.

BRIEF DESCRIPTION OF THE COURSE

The course provides interactive education during five days with presentations on the ‘comeback-day’.

The content will be provided by clinicians, researchers and (clinical) physicists who are directly involved in diagnostics, monitoring and treatment. Demonstrations and visits to various departments are also included.

ACQUIRED EXPERTISE

The attendees will be able to understand the commonly used medical technology in hospitals, the impact of the used technology and why it is used, the basics of biophysics of physiology and pathology, the physics typically used in medical technology.

PRELIMINARY COURSE SCHEDULE

Day 1
- Introduction medical technology
- Heart & Circulation monitoring
- Patient Monitoring (ECG, BP)
- Pregnancy monitoring

Day 2
- Nervous system
- Cardiac therapy
- Circulation and muscles during exercise

Day 3
- Endoscopy
- Cutting Techniques, e.g. Laser
- Drug delivery systems: infusion

Day 4
- Lung function; Mechanical ventilation
- Anesthesia & equipment
- Kidney & Dialysis systems

Day 5
- Cutting techniques
- Electrosurgery
- OR and its technology

Day 6
- Guidelines on safety
- CE and FDA; Ethical aspects
- Presentations

Physics and Physiology behind Medical Technology