



Faculty of Engineering and Architecture

Department of Textiles



- **Established in 1929**
 - **Faculty of Applied Sciences,
now Faculty of Engineering and Architecture**
 - **Team of about 45 people**
 - * ***4 Professors*** :
Prof. Paul Kiekens
Prof. Lieva Van Langenhove
Prof. Gustaaf Schoukens
Prof. Karen De Clerck
 - * ***about 20 researchers***: academic scientists and engineers, with university degrees, often preparing a PhD
 - * ***other personnel*** : organisational, technical, administrative support
 - **For 80 % own funding, remaining amount from the university (government funds)**
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➤ **Activities:**

Education

Research

Services to the industry

I. CHEMICAL AND PHYSICAL TEXTILE TECHNOLOGY headed by Prof. Dr. Paul KIEKENS

→ **Advanced and high performance textile materials** (Prof. dr. Paul KIEKENS)
Nanoparticles based products and developments: composites, flame retardancy,...

→ **Conductive Textiles**

→ **Biotechnology** (dr. Tom GHEYSENS)
Biotechnological functionalisation
Specific enzymatic surface modification
Enzymatic and microbial modification of fibres
Biomimetics

→ **CMSE: Centre for Materials Science and Engineering** (ir. Els VAN DER BURGHT), <http://cmse.ugent.be/>

→ **Electrospinning: Technology Developer** (dr. Philippe WESTBROEK)

II. FIBROUS STRUCTURES

headed by Prof. Dr. ir. Lieva VAN LANGENHOVE

→ **Smart textiles** (dr. ir. Carla HERTLEER)

Textile sensors

Dressing material

Impedance spectroscopy

Textile antennas

Electrotherapy

Medical applications

→ **Weaving**

Research and design of stretch fancy yarns

Simulation of weft insertion on airjet and rapier looms

→ **Carpets** (ing. Didier VAN DAELE)

Automated assessment of carpet wear, carpet resilience, static electricity

III. FIBRE AND COLOURATION TECHNOLOGY headed by Prof. Dr. ir. Karen DE CLERCK

→ **Fibre Technology**

Fibre morphology and characterisation
Electrospinning and nanofibres

→ **Colouration Technology**

Colour-changing materials
Dye diffusion processes
Dye-Polymer interactions

IV. POLYMER PROCESSING TECHNOLOGY headed by Prof. Dr. ir. Gustaaf SCHOUKENS

→ **Polymer morphology**

Mechanical properties, dimensional stability, permeability of polymer films, crystalline structures, recycling of polymers

→ **Polymer rheology**

Viscosity, viscoelasticity, flow stability, molecular weight, molecular weight distribution, extrusion, injection moulding

→ **Polymer reactor engineering**

Polymer nanoparticles, polymer nanostructure, polymerization kinetics, long chain branching

→ **Biopolymers**

Chitin, chitosan, deacetylation, acetylation, solution properties, biomedical applications

→ **ERCAT : European Research Centre for Artificial Turf**

(director : Prof. Dr. Paul KIEKENS)

New polymers, FIFA testing, improvement of resilience, woven artificial turf
(lic. Stijn RAMBOUR)

Education

- **Till the end of the 20th century : Civil Engineer (“Burgerlijk Ingenieur”) in Textiles (in Dutch)**
- **Beginning of the 21st century : 2nd cycle degree in Materials Engineering, option Textiles (in Dutch)**
- **From 2007 onwards:**
 - **Master of Materials Engineering, main subject Textiles**
 - 30% specific textile courses (in Dutch)
 - 15% polymers
 - 55% general
 - **Master of Textile Engineering E-TEAM (in English)**
 - Textile education in a multidisciplinary way
 - International programme, all major European universities participate



Course structure

Master of Textile Engineering

- **120 ECTS : two years of study**
- **4 semesters; semester 4 = (research) thesis**
- **1st, 2nd and 3rd semester : regular courses with each course = one module = one specialised professor = one week.**
- **10 weeks / semester : 10 x 3 modules and professors from all over Europe**
- **10 weeks package (= one semester) = one venue = one university.**

Edition 2012-2014

- Tampere University, Finland : autumn 2012
- Ghent University, Belgium : spring 2013
- ENSISA, Mulhouse, France : autumn 2013
- + thesis : any university in Europe

Edition 2013-2015

- Technical University of Lodz, Poland : autumn 2013
- UPC Barcelona, Spain : spring 2014
- Ege University, Turkey : autumn 2014
- + thesis : any university in Europe

Services to the industry

- **Physical testing**
 - **Carpet testing**
 - **Fire testing**
 - **Chemical testing**
 - **Artificial turf testing**
- ISO 17025 accreditation
- FIFA accreditation

Other

- **Many international (EU) cooperations in various projects within EU (together with the industry) and several Flemish (bilateral) projects**
- **Autex member + secretariat (Autex : Association of Universities for Textiles)**
- **Active in the European Technology Platform**
- **ENMat : European Network of Materials Research Centres**
- **Others : ...**