# Taxonomy of Technological Areas

#### **ELECTRONICS, IT AND TELECOMMS**

#### **Electronics, Microelectronics**

Automation, Robotics Control Systems

Digital Systems, Digital Representation

#### Electronic circuits, components and equipment

Micro and Nanotechnology related to Electronics and Microelectronics

3D printing

Electronic engineering

**Embedded Systems and Real Time Systems** 

High Frequency Technology, Microwaves

Magnetic and superconductor materials/devices

Nanotechnologies related to electronics & microelectronics

**Optical Networks and Systems** 

Peripherals Technologies (Mass Data Storage, Displays)

Printed circuits and integrated circuits

**Quantum Informatics** 

Semiconductors

Smart cards and access systems

#### Information Processing & Systems, Workflow

**Advanced Systems Architecture** 

Archivistics/Documentation/Technical Documentation

Artificial Intelligence (AI)

**Computer Games** 

**Computer Hardware** 

**Computer Software** 

Computer Technology/Graphics, Meta Computing

Data Processing / Data Interchange, Middleware

Data Protection, Storage, Cryptography, Security

Databases, Database Management, Data Mining

Electronic Commerce, Electronic Payment & Signature

Imaging, Image Processing, Pattern Recognition

Information Technology/Informatics

Internet Technologies/Communication (Wireless, Bluetooth)

Knowledge Management, Process Management

Simulation

Speech Processing/Technology

User Interfaces, Usability

**Electronic Signature** 

**Building Automation Software** 

Remote Control

**Smart Appliances** 

Environmental and Biometrics Sensors, Actuators

**Cloud Technologies** 

Internet of Things

#### **IT and Telematics Applications**

Applications for Health

**Applications for Tourism** 

**Applications for Transport and Logistics** 

**ASP Application Service Providing** 

e-Government

**Environment Management Systems** 

GIS Geographical Information Systems

**ERP** - Electronic Resources Planning

CRM - Customer relationship Management

**Quality Management System** 

Maintenance Management System

Operation Planning and Scheduler System

**Didactic System** 

**Serious Games** 

ICM – Internet Content Management

Analysis Risk Management

Work Hygiene and Safety Management

#### Multimedia

**Cultural Heritage** 

E-Learning

E-Publishing, Digital Content

**Human Language Technologies** 

Information Filtering, Semantics, Statistics

Visualisation, Virtual Reality

#### **Telecommunications, Networking**

Audiovisual Equipment and Communication

**Broadband Technologies** 

**Mobile Communications** 

**Narrow Band Technologies** 

Network Technology, Network Security

Radar

Research Networking, GRID

Satellite Technology/Positioning/Communication in GPS

Signal Processing

Hi-Fi

**Description to Sound and Music Computing** 

Description Image/Video Computing

Communications Protocols, Interoperability

**Residential Gateway** 

VoIP telephony, remote access

# INDUSTRIAL MANUFACTURING, MATERIAL AND TRANSPORT

#### **Design and Modelling / Prototypes**

3D printing

#### **Industrial Manufacture**

Cleaning (sandblasting, brushing)

Coatings

Drying

Erosion, Removal (spark erosion, flame cutting, laser, ..)

Forming (rolling, forging, pressing, drawing)

Hardening, heat treatment

Joining techniques (riveting, screw driving, gluing)

Jointing (soldering, welding, sticking)

**Machine Tools** 

Machining (turning, drilling, moulding, planing, cutting)

Machining, fine (grinding, lapping)

Mixing (powder, etc.), separation (sorting, filtering)

Moulding, injection moulding, sintering

Extrusion

Surface treatment (painting, galvano, polishing, CVD, ..)

Microengineering and nanoengineering

Micromachining, nanomachining

Microassembly, nanoassembly

Micropositioning, nanopositioning

#### **Process control and logistics**

**Process automation** 

Manufacturing plants networks

Component integration

Supply chain

Information processing & Systems, Workflow

Prototypes, trials and pilot schemes

#### **Plant Design and Maintenance**

#### Packaging / Handling

Foil, fils

Laminate

Packaging for machines

Packaging for materials

Plastic bags

#### **Construction Technology**

Materials, components and systems for construction

Construction methods and equipment

Fire Resistance/Safety

Installations related to construction (energy, lighting, ...)

Construction maintenance and monitoring methods & equipment

Construction engineering (design, simulation)

Management of construction process & life

#### **Materials Technology**

Adhesives

**Building materials** 

Ceramic Materials and Powders

Colours and varnish

Composite materials

Fine Chemicals, Dyes and Inks

Glass

Iron and Steel, Steelworks

Materials Handling Technology (solids, fluids, gases)

Metals and Alloys

Non-ferrous Metals

**Optical Materials** 

Paper technology

Plastics, Polymers

Properties of Materials, Corrosion/Degradation

Rubber

Stone

**Advanced Textile Materials** 

Lightweight materials

**Biobased materials** 

Carbon nanotubes

Conductive materials

Hybrid materials

Nanomaterials

#### **Transport Infrastructure**

Air Transport

**Intermodal Transport** 

Logistics

Railway Transport

**Road Transport** 

Traffic Engineering / Control Systems

**Transhipment Systems** 

Water Transport

#### **Transport and Shipping Technologies**

Design of Vehicles

**Hybrid and Electric Vehicles** 

Railway Vehicles

**Road Vehicles** 

Shipbuilding

**Traction/Propulsion Systems** 

Artificial intelligence applications for cars and transport

Navigation and embedded systems

Sensors for cars and transport

Lightweight construction

Air pollution control for cars and transport

Automotive engineering

Body and main parts

Automotive electrical and electronics

Audio / video

Charging system

Electrical supply system

Measurement devices

Ignition system

Lighting and signalling system

Switches and wiring

Security systems

Interior equipment

Powertrain and chassis

**Braking system** 

Energy supply system

Transmission systems

#### Traffic, mobility

Planning and security

Engineering

System and transportation

#### **Aerospace Technology**

Aeronautical technology / Avionics

Aircraft

Helicopter

**Satellite Navigation Systems** 

Space Exploration and Technology

Propulsion

Guidance and control

Thermal insulation for space applications

#### **OTHER INDUSTRIAL TECHNOLOGIES**

#### **Other Industrial Technologies**

Cleaning Technology

#### **Process Plant Engineering**

**Apparatus Engineering** 

# **Chemical Technology and Engineering**

Agro chemicals

**Inorganic Substances** 

Colours, dyes related to Chemical Technology

Electrical Engineering/ Electrical Equipment

Man-made fibres

**Organic Substances** 

**Pharmaceutics** 

Plastics and Rubber related to Chemical Technology

Soaps, detergents

Special chemicals, intermediates

Care, Hygiene, Beauty

#### **Textiles Technology**

Component adhesives for strengthening of seam

Dry filling related to Textiles Technology

Dyeing related to Textiles Technology

Finisher related to Textiles Technology

Non weaving related to Textiles Technology

Solvent based glues for strengthening of edges and seam

**Textile fibres** 

Weaving related to Textiles Technology

Woven technical textiles for industrial applications

#### Footwear / Leather Technology

Dry filling related to Footwear / Leather Technology

Dyes related to Footwear / Leather Technology

Tanned leather process/ Leather Technology

# Sound Engineering/Technology Mining Technologies Printing

Flexography

**Printed Reel Material** 

Household Goods & Appliances

#### **ENERGY**

#### **Energy storage and transport**

Heat storage

Heat transport and supply, district heating

Storage of electricity, batteries

Transmission of electricity

Transport and storage of gas and liquid fuels

Transport and storage of hydrogen

Power to gas technology

#### Energy production, transmission and conversion

Fuel cells

Hydrogen production

Compression and liquefaction of gases

Furnace and boiler technologies

Generators, electric engines and power converters

Heat exchangers

Heat pump

Cooling technologies

**Turbines** 

Combined heat and power (CHP) engines

Micro-generation and grid connection

Other energy related machinery

Smart grids

#### **Fossil Energy Sources**

Gaseous fossil fuel

Solid fossil fuel

Liquid fossil fuel

Mining and extraction

#### **Nuclear Fission / Nuclear Fusion**

#### **Renewable Sources of Energy**

Geothermal energy

Hydropower

Liquid biofuels

**Photovoltaics** 

Solar/Thermal energy

Solid biomass

Waste incineration

Wind energy

Energy from wastewater

Integrated waste-energy processes

Bio-refineries for energy

Waste to energy - other

#### Biogas and anaerobic digestion (AD)

#### **Energy efficiency**

**Energy management** 

Lighting, illumination

Process optimisation, waste heat utilisation

Thermal insulation

Heat pipes

Low, zero and plus energy rating

#### Other Energy Topics

Combustion, Flames

Fuels and engine technologies

Micro- and Nanotechnology related to energy

#### **Carbon capture and energy**

#### PHYSICAL AND EXACT SCIENCES

#### Chemistry

**Analytical Chemistry** 

Computational Chemistry and Modelling

**Inorganic Chemistry** 

**Organic Chemistry** 

Petrochemistry, Petroleum Engineering

#### Meteorology / Climatology

Biosensor

#### **Physics**

Vibration and Acoustic engineering

**Optics** 

Vacuum

#### **Separation Technologies**

Filtration and Membrane Processes

Extraction

Adsorption

Distillation

Sublimation

Other Processes

#### Micro- and Nanotechnology

#### **BIOLOGICAL SCIENCES**

#### Medicine, Human Health

Biostatistics, Epidemiology

Clinical Research, Trials

Cytology, Cancerology, Oncology

Dentistry / Odontology, Stomatology

Diagnostics, Diagnosis

**Human vaccines** 

**Emergency medicine** 

Environmental Medicine, Social Medicine, Sports Medicine

Gene - DNA Therapy

**Gerontology and Geriatrics** 

Heart and blood circulation illnesses

Medical Research

Medical Technology / Biomedical Engineering

Neurology, Brain Research

Pharmaceutical Products / Drugs

Physiology

Surgery

Virus, Virology/Antibiotics/Bacteriology

Stem cell Technologies

Physiotherapy, Orthopaedic Technology

Single Use Products and Consumer Goods

**Medical Textiles** 

Medical Furniture

**Medical Biomaterials** 

#### **Biology / Biotechnology**

Biochemistry / Biophysics

Cellular and Molecular Biology

Enzyme Technology

**Protein Engineering** 

**Genetic Engineering** 

Synthetic Biology

In vitro Testing, Trials

Microbiology

Molecular design

Toxicology

**Bionics** 

#### **Genome Research**

**Bioinformatics** 

Gene Expression, Proteome Research

Population genetics

# Micro- and Nanotechnology related to Biological sciences

#### E-Health

Safety & systems

Sensors & Wireless products

Health information management

Remote diagnostics

#### **Industrial Biotechnology**

**Biobased Materials** 

**Bioplastics** 

Biobased chemical building blocks

**Biopolymers** 

Biobased high-performance materials

**Biological Nanomaterials** 

**Biolubricants** 

**Biotensides** 

**Ionic Liquids** 

**Bio-Composites** 

Fermentation

Bioprocesses

**Downstream Processing** 

#### **AGRICULTURE AND MARINE RESOURCES**

#### **Agriculture**

Agriculture Machinery / Technology

Animal Production / Husbandry

Biocontrol

**Crop Production** 

Horticulture

**Pesticides** 

Precision agriculture

Seed coating

**Veterinary Medicine** 

Micro- and Nanotechnology related to agriculture

#### Silviculture, Forestry, Forest technology

Forest technology

Paper Technology

Pulp Technology

Silviculture, Forestry

**Wood Products** 

#### Resources of the Sea, Fisheries

Aquaculture

Fish / Fisheries / Fishing Technology

Marine Science

Micro- and Nanotechnology related to marine resources

#### **AGROFOOD INDUSTRY**

#### Technologies for the food industry

**Drink Technology** 

Food Additives/Ingredients/Functional Food

Food Packaging / Handling

**Food Processing** 

Food Technology

#### Food quality and safety

**Detection and Analysis methods** 

Food Microbiology / Toxicology / Quality Control

Safe production methods

Traceability of food

#### Micro- and Nanotechnology related to agrofood

## **MEASUREMENTS AND STANDARDS**

#### **Measurement Tools**

Acoustic Technology related to measurements

Analyses / Test Facilities and Methods

Chemical material testing

Electrical Technology related to measurements

Mechanical Technology related to measurements

Optical material testing

Optical Technology related to measurements

Other Non Destructive Testing

Sensor Technology related to measurements

Thermal material testing

#### Amplifier, A/D Transducer

**Electronic measurement systems** 

# Recording Devices Reference Materials Standards

Quality Standards
Technical Standards

#### PROTECTING MAN AND ENVIRONMENT

# Safety

Acoustic safety

Assessment of Environmental Risk and Impact

Fire Safety Technology

**Hazardous Materials** 

**Radiation Protection** 

Protection against intoxication

#### **Environment**

Indoor Air Pollution/Treatment

Outdoor Air Pollution/Treatment

Capture and Storage of CO2

Climate Change mitigation

Biodiversity / Natural Heritage

**Ecology** 

Environmental Engineering / Technology

Measurement and Detection of Pollution

**Natural Disasters** 

Remote sensing technology

Soil and Groundwater Pollution

**Remediation of Contaminated Sites** 

Clean Production / Green Technologies

**Noise Pollution** 

Life Cycle Assessment

#### **Waste Management**

Biotreatment / Compost / Bioconversion

**Incineration and Pyrolysis** 

Land and Sea Disposal

Recycling, Recovery

Radioactive Waste

Waste disinfection / detoxification

Waste to Energy / Resource

Landfill mining

Rare Earths Metals Treatment

# **Water Management**

**Industrial Water Treatment** 

Municipal Water Treatment

Wastewater Recycling

**Drinking Water** 

Rain Water

Sludge Treatment / Disposal

Desalination

Water Resources Management

Marine Environment

Hydrology

Flood Management

Water in Buildings

Underground infrastructure

# **OTHER**