MTEC
a member of NSTDA

National Metal and Materials Technology Center

Vision

Driving technology and innovation in materials to address key challenges and meet user requirements, both commercial and socio-community development.

Mission

Develop and enhance capabilities in materials technology to the public and private sectors.

- Research technology and innovation
- Technology transfer for utilization
- Human resources and infrastructure development

MTEC at a Glance 2023

Employee
430

Research, Development and Engineering Staff
355

Support Staff
75

289
Projects

61
Intellectual property

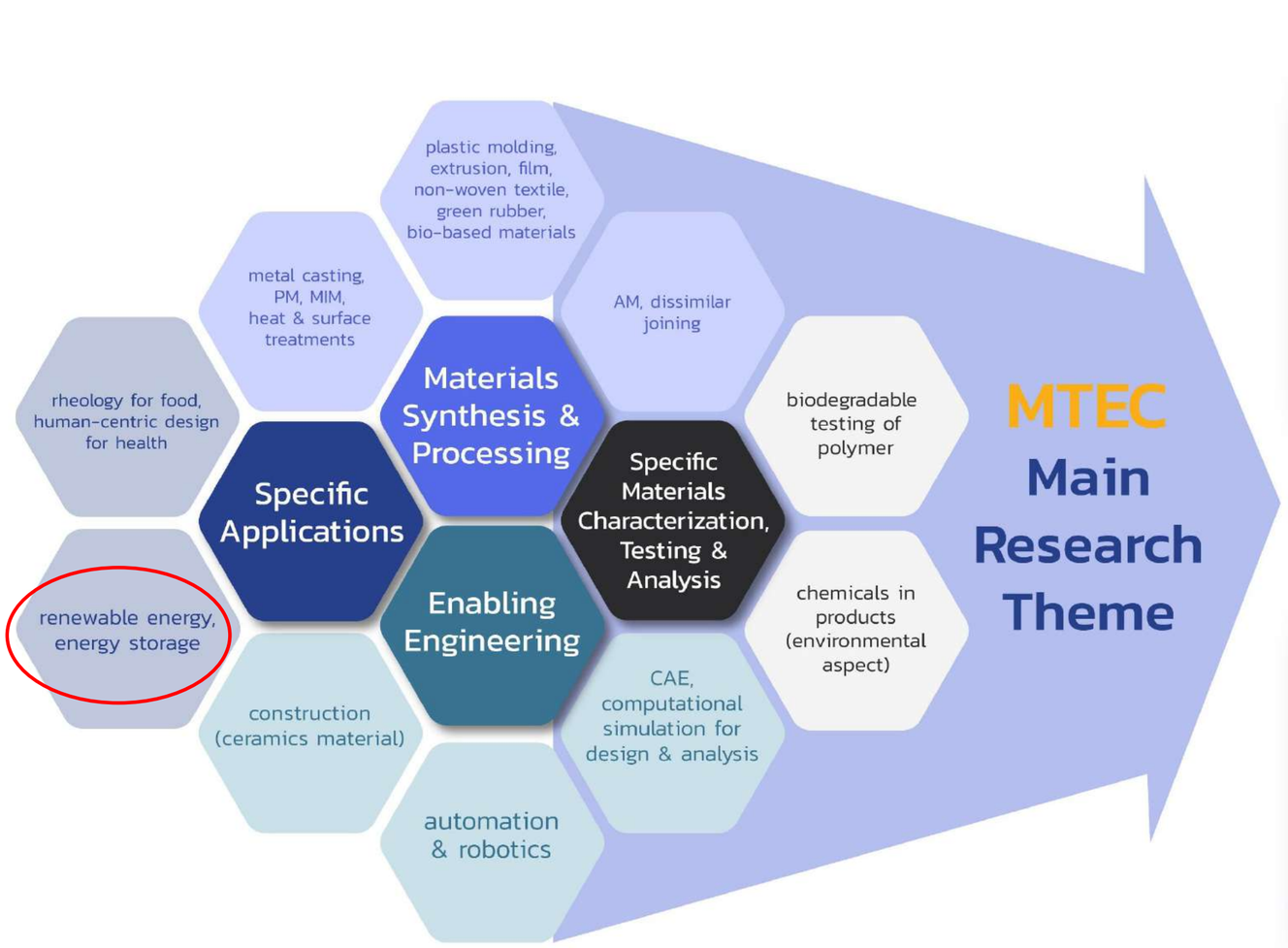
6
Business and technology transfer

7
commercial prototypes

53
Intellectual property claims

118
Publications

From MTEC's Core Competencies to Main Research Themes



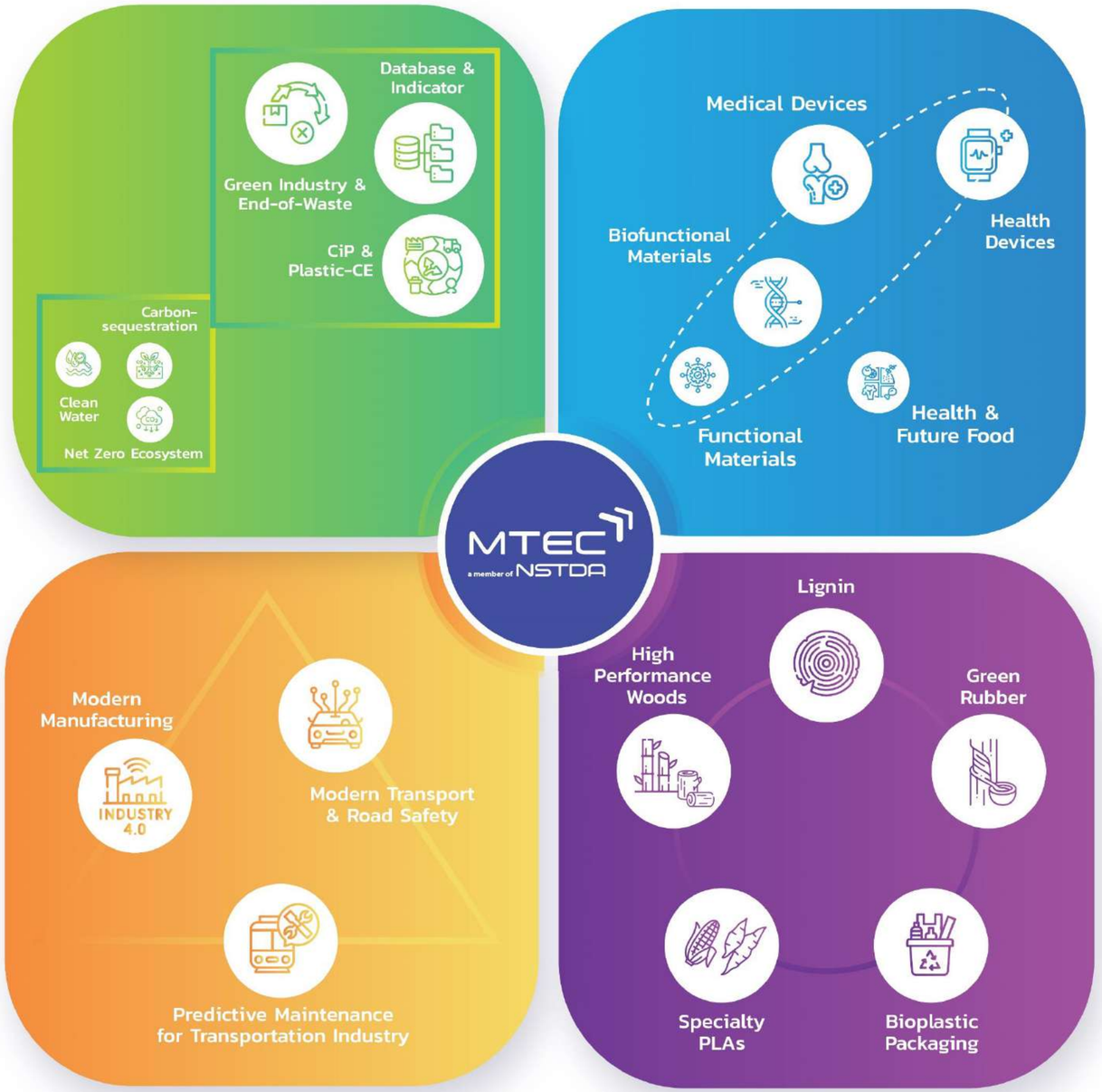
4 Main Research Themes

Material Solution for Net Zero

Driving Thailand towards Carbon Neutrality and Net-Zero Greenhouse Gas Emissions with Materials Technology

Medical and Health Innovation

Development of Innovative Materials/Medical and Health Devices to Enhance Quality of Life



Modern Manufacturing and Modern Transportation & Road Safety

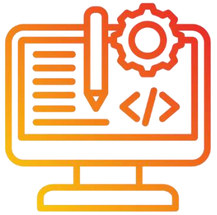
Development of material technology and design to enhance manufacturing and transportation sectors

High-value/Specialty Biobased Materials

Development of Biological Materials into High-value Specialty Products

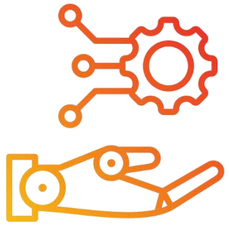
We are Solutions Providers

Formulation/
Material Selection



Design &
Manufacturing

Product Development
in Health and
Medical Science



Robotics &
Automated System

Tool and
Information for
Green Economy

Formulation/Material Selection

Research and development of novel material formulations and selection of optimal materials for specific applications. This entails applying materials engineering principle, i.e., structure-properties-processing-performance relationship, to ensure that components or products fulfill their intended purpose efficiently and cost-effectively.

Development of filaments for 3D printing that optimize both strength and toughness

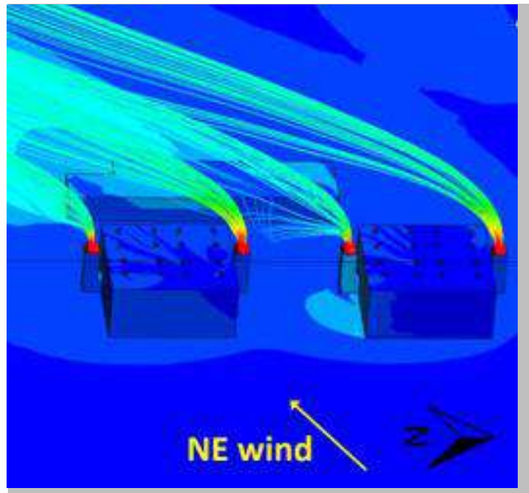
Development of high-quality milking liners made from a blend of natural rubber and synthetic rubber

Development of graphene oxide ceramic hybrid coatings for automotive applications

Testing for the biodegradability of materials

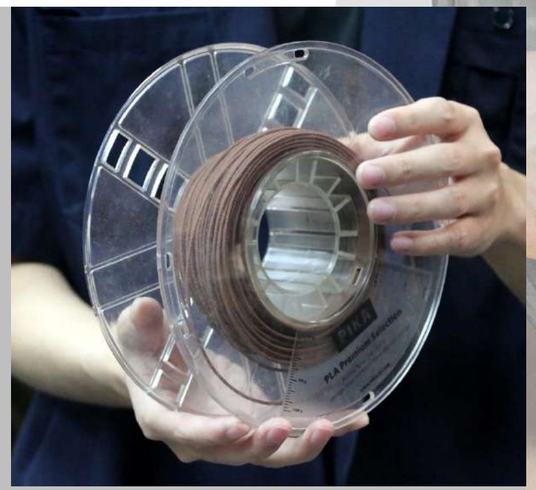
Design & Manufacturing

Conducting research and development in manufacturing and design engineering, encompassing material forming processes, additive manufacturing, dissimilar materials joining, structural component analysis, and computational fluid dynamics. This aims to enhance the competitiveness of Thai entrepreneurs and prepare for rapid technological changes.



FEA and CFD simulation for product design and engineering problem-solving

Development and improvement of aluminum production technology



Metal powder forming and 3D metal printing

Product Development in Health and Medical Science

Research and development of medical materials and devices tailored to the specific anatomy and lifestyle of Thai people. This aims to improve the quality of life, reduce reliance on imports, stimulate the medical device industry, and foster self-sufficiency in the Thai public health system.

Research and development of bone replacement materials

Research and development of anatomical locking plates

Research and development of bioabsorbable bone wax

Robotics & Automated System

Research and development of robotic systems and automation solutions to enhance the competitiveness of Thai entrepreneurs in both manufacturing and agricultural sectors. This aims to revolutionize paradigms, increase productivity, reduce resource consumption, minimize waste, decrease errors, and tackle labor shortages.

Development of condition monitoring systems for industrial machinery and equipment

Terra: Automated agricultural mobile robot platform for weed control in sugarcane plantations

Development of an agricultural land measurement tool with an integrated harvesting cost estimation system

Tool and Information for Green Economy

Promoting a circular economy, developing and applying life cycle databases, and empowering businesses and consumers to make judicious choices of materials for optimal use. This prepares for changing environmental and economic contexts influenced by global trade trends towards carbon neutrality and net-zero greenhouse gas emissions.

Promoting knowledge and development in circular economy principles and fostering technological advancements in materials science

Building a technological ecosystem to create value from safe material recycling

The European Union's Carbon Border Adjustment Mechanism (CBAM)

Services

R&D

MTEC is a leading solution provider in materials science and technology, offering consulting, contract research, and collaborative research services to Thai entrepreneurs

TESTING

MTEC boasts highly experienced experts and state-of-the-art facilities for materials analysis and engineering testing, offering comprehensive services including testing, analysis, and in-depth consultation

TRAINING

MTEC is proud to have a team of highly skilled experts in materials technology and engineering. This enables us to offer comprehensive training services that cover a wide range of technological knowledge, from fundamental to specialized topics. Our goal is to serve both the public and private sectors.

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THANK YOU!

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