The Education Program for Innovative Global Engineers ～Toward development of an integrated global campus with collaboration between industry, academia, and government～
The University intends to lead the revitalization and development of the local industries in Japan and next-generation strategic regions, and the place continuously provides the education to produce industry creative leaders based on a Philosophy of GIGAKU.

- COE for cultivating Industry Creative leader and Innovative Global Engineers.
- COE for creating innovation conducting research and development of advanced technology through cooperation with industries.
- A leading institution in globally expanding GIGAKU Education and Research Center.
- COE for exchange of globally-minded human resources with diverse values, as well as creating for new academic research.

Vision for the Future of Nagaoka University of Technology

Basic Philosophy

Nagaoka University of Technology aims to establish itself as an indispensable member of global society, a university which creates GIGAKU with a proactive approach to social change, produces engineers with practical, creative capabilities and a spirit of service who will lead society into the future, and places emphasis on graduate-level education.

「GIGAKU (Science and Technology)」:
Natural Science represents scientific approach to natural phenomena. In contrast, GIGAKU represents scientific approach to technology.

Our Mission

- Cultivating Industry Creative leaders.
- Solving issues facing the region and industry.
- Playing a leading role in development of overseas collage of technology and university of technology.
Vision for the NEXT 10 Years

Our image by achieving the Vision

The university leading the Innovative Global Engineering Education with a strong network among world-leading strategic regions in the next-generation.

Elements of the Vision

○ Interactive Student and Faculty Exchange.
○ Developing innovative globally-minded human resources using integrated global campus with collaboration between industry, academia, and government.
○ Sustainable Support for innovation from Japanese companies and local industries at the strategic regions.
○ Construction of the structure guaranteed independently and sustainable development by funds from companies.

○ Promoting KOSEN-University of Technology (GIGAKU) Education and Research Model at the next-generation strategic regions and establishing GIGAKU Education and Research Network.
○ Promoting Industry-Academia Cooperation Model at overseas strategic regions and establishing GIGAKU Techno Park Network.

Overview of the Vision

Integrated Global Campus with Collaboration between Industry, Academia, and Government

「GIGAKU Education and Research Network」+「GIGAKU Techno Park Network」=「Integrated Global Campus with Collaboration between Industry, Academia, and Government」

Northern America
(University of Guanajuato, Universidad de Monterrey, etc.)

North and South America
(University of Guanajuato, Universidad de Monterrey, etc.)

Europe
(Technische Universitat Darmstadt, etc.)

Asia
(Hanoi University of Science and Technology, Mongolian University of Science and Technology, etc.)

Africa
(Tswane University of Technology, etc.)

GIGAKU Techno Park Network

GIGAKU Education and Research Network

Overseas strategic regions where Japanese companies will expand the business

International GIGAKU Park Foundation
Concept of KOSEN-University of Technology (GIGAKU) Education and Research Model for Overseas Expansion

**GIGAKU Education and Research Model**
(NUT-based Integrated Global Campus with Collaboration between Industry, Academia and Government)

**Nagaoka University of Technology**

- Developing Innovative Engineer by GIGAKU Education and Research
- Reformation and revitalization of small and medium-sized enterprises by strengthening of industry-government-academia collaboration
- Primary and secondary school in the areas with KOSEN
- Local Industry
- Local government
- Financial institution

The place to engage in the innovation-oriented practical education and R&D collaborating with the personnel who aim to learn GIGAKU.

**Overseas GIGAKU Education and Research Center**
(Overseas Institution-based Integrated Global Campus with Collaboration between Industry, Academia and Government)

- Overseas expansion supported by Japanese Companies (SMEs)
- Increasing the number of international student by improving the programs
- Overas expansion of KOSEN-UT (GIGAKU) Education and Research Model
- Promote Interactive Student and Faculty Exchange
- Support for the introduction of GIGAKU Education and Research System which emphasize practice.
- Enhancing Cooperation with Japanese Companies and local Industries

The place to engage in practical education and R&D with KOSEN-UT (GIGAKU) Education and Research Model at overseas institution that has a philosophy of GIGAKU.

**Ongoing programs at Nagaoka University of Technology**

- Double Degree Program
- International Graduate Course for Continuing Professional Development
- Twinning Program
- Overseas Internship
- Support for KOSEN Advanced Course
Specific Procedure: GIGAKU Education and Research Model for Overseas Expansion

GIGAKU Education and Research NAGAOKA Model

- Cultivating Innovative Global Engineer addressing the needs on global stage
- Department of Science and Technology Innovation (established in FY 2015)
- Doctoral Program
- Master's Program
- Undergraduate Program (Junior and Sophomore)
- Internship (Jitsumu-Kunren)
- College of Technology (KOSEN)
- KOSEN Advanced Course
- Wide experience in industry-academia collaboration since its foundation
- Education to develop practical engineers from the age of 15
- Financial base for sustainable management

Overseas Base for GIGAKU Education and Research

- Cultivating practical engineers who will play leading role in manufacturing (MONODZUKURI) at Japanese companies in overseas strategic regions
- Doctoral Program
- Double Degree Program
- Joint Degree Program
- International Graduate Course for Continuing Professional Development
- Interactive Overseas Internship
- Twinning Program
- Certification of International GIGAKU Education
- Support for establishing KOSEN-UT Collaborative Education Center
- Expand to GIGAKU Techno Park Network
- Extend to GIGAKU Education and Research Network
- Establishment of International GIGAKU Park Foundation

(Notes) Orange-colored program: ongoing program and not belonging to this conception. Red-colored program: new program and belonging to this conception.
Example: Overseas Expansion of Integrated Global Campus with Collaboration between Industry, Academia and Government (Mexico)

Nagaoka National College of Technology
High Schools in Niigata
Colleges of Technology in Japan

Integrated Global Campus with Collaboration between Industry, Academia and Government (Nagaoka Techno Park)
Niigata/Nagaoka Regional Industries
Automotive Industries, Nippon Seiki Group, Riken Corporation Group, etc.
Machinery Engineering Industries
Local governments: Nagaoka City, Sanjo City, Tsubame City, etc.
Chamber of Commerce and Industry, Japan Finance Corporation, Financial Institutions: Hokuetsu Bank, etc.

NUT
International GIGAKU Strategy Office (New)
Center for International Exchange and Education (CIEE)

Fostering mid-career engineer
(Establishment of Colleges of Technology in Mexico)
Cultivating engineers and professional engineers with Double Degree Program

University of Guanajuato

GIGAKU Innovation Promotion Center
Techno-Incubation Center
Regional Collaboration Support Center (New)
GIGAKU Venture Support Organization (New)

Exchange of dispatch of student, International Student, and industrial engineer Conducting Joint Development
• Developing global engineers in the regional industries and automotive industries
• Support for overseas business expansion

Executive Personnel
• Human resources • Collaborative research

Support for Japanese company to expand business in Latin America

Office of Mexico-Japan Economic Partnership Agreement, Embassy of Mexico in Japan
JETRO
JICA
Value Chain of Developing Globally-minded Human Resources that utilize unique characteristic of NUT at the Integrated Global Campus with Collaboration between Industry, Academia, and Government

**KOSEN-UT Education Model**

- Cultivating engineers from the age of 15

**Strategic Model in Mexico and Mongolia**

- Transfer of Innovation-oriented Human Recourses Development Model from the age of 15

**Twinning Program**

- Internship (Jitsumu-Kunren) in Japanese companies, overseas companies, and research institutions. (approx. 6 months)

**NUT’s Boot Camp**

**Re-educating the overseas engineers**

**Training of faculty at partner institutions**

**Department of Science and Technology Innovation**

- Energy Science and Technology
- Environment Science and Technology
- Material Science and Technology

**Practical Engineers addressing the needs on global stage**

- The integrated global campus in overseas base
- The integrated global campus in domestic base
- The integrated global campus in overseas base

- In Nagaoka, students would experience the innovation with aspiring engineers all over the world.
- In overseas base, students would have an opportunity to work in Japanese overseas affiliated companies and global companies, and they would also experience the innovation.

**GIGAKU Techno Park Network**

**GIGAKU Education and Research Network**

Creating the industry-academia-government integrated collaborative environment in the strategic regions, such as Mexico, Mongolia, Vietnam, Thailand, Sri Lanka, Myanmar, South Africa, etc.

Creating the qualified cross-border collaborative learning environment without boarders at the overseas institutions that has a philosophy of GIGAKU
GIGAKU Techno Park Plan

**Upbringing of human resources to Practicing global engineer which responds to the global social needs**

**Integrated campus in domestic base**

**Students in graduate school of Nagaoka University of Technology**

**Global integrated campus of industry-university-government in an overseas base**

**Collaborated Research project**

**GIGAKU Techno Park network**

- Mexico, Vietnam, Spain, Mongolia, Thailand, Malaysia,
- Kosen
  - Mexican Kosen, Vietnam JIIST
  - Bidirectional exchange
  - Faculty staffs
    - Short stay exchange
    - Long term internship
  - DDP PhD

**Innovation experience**

- Global enterprises
Global Network of GIGAKU Techno Park and Integrated global campus

- Mongolia
  - Mongolian Kosen
  - Mongolian University of Science and Technology
  - University of the Basque Country
  - Mondragon Unibertsitatea
- Japan
  - Nagaoka University of Technology
- Mexico
  - Guanajuato Techno Park
  - University of Guanajuato
- Spain
  - University of the Basque Country
- Malaysia
  - University of Sains Malaysia
- Vietnam
  - Hanoi University of Science and Technology
  - Chulalongkorn University
- Thailand
  - Integrated global university
- Mongolia
  - Venture business creation
- Mexico
  - Enterprise university cooperation study
  - Japanese-enterprise support
- Spain
  - Enterprise university cooperation study
- Malaysia
  - Japanese-enterprise support
- Vietnam
  - Japanese-enterprise support
- Thailand
  - VJIIST
An overseas development example in an integrated global campus (Mexican model)

Integrated global campus at Nagaoka (Nagaoka Techno Park)
- Technical colleges (Kosen) High school
- Integrated global campus at Nagaoka (Nagaoka Techno Park)
- Domestic global enterprises
- Chamber of commerce, Autonomous body Financial institution in Niigata area
- Educational cooperation and global support
- Super global university project
- Mobility up in a dispatch & invitation exchange to students and an enterprise engineer
- Development and expansion of cooperative research in both countries
- Upbringing and overseas expansion support to area local industry enterprise
- Upbringing car related global engineer
- University of Guanajuato
- University of Guanajuato
- Core engineer upbringing (Mexican technical college)
- Japanese global enterprises
- State government, Department of Science and Technology, CONACYT and autonomous body
- Educational cooperation
- Global support
- Advance development support of Japanese-enterprises to Latin America
- Mexican Embassy at Tokyo JETRO, JICA
- Japanese Embassy at Mexico city JETRO MX, JICA MX
- Double degree program Upbringing researchers and advanced engineers
- Educational & research cooperation
- Teacher dispatch & invitation Student exchange

Mexico Embassy at Tokyo JETRO, JICA

Japanese Embassy at Mexico city JETRO MX, JICA MX
Integrated global campus

GIGAKU Techno Park

Research Project with collaboration work

Progress on innovative research technology

Practical development to enterprise project

Industrialization

Research results

Research fund

DDP
Student and faculty staff exchange

Scheme of independent and continuous development on the project by funds from an enterprise collaboration