

Globalization at KU

-Ride on Time on Semiconductor-



Executive Vice President, Kumamoto University
Jun Otani

Where We Are



About Kumamoto

Amakusa

Archipelago consisting of more than 120 islands among the blue seas



Kumamoto Castle

One of the oldest (more than 400 years) and best castles in Japan



Mt. Aso

The active volcano with one of the largest calderas in the world



Kumamon

Mascot for Kumamoto

History

- Since 1949 (current Univ.)
- Its roots go back to the 18th century
- The Fifth Imperial High School (1894-1950) is one of the oldest high schools under the old system of education in Japan
- Currently
About 10,000 Students
(including 2,000 grad. students)
1,000 Faculties and 1,700 staff



Old time building in 19th Century



The Red Gate (National Important Cultural Property)



The Memorial Museum of the Fifth High School
(National Important Cultural Property)

Schools

School of Letters

Integrated Human Studies, History, Literature, Communication and Information Studies

Contemporary culture studies, Manga

School of Education

Elementary School Teacher, Junior High School Teacher, Special Needs Education Teacher, School Health Teacher

School of Law

Law

School of Science

Science (Mathematical Sciences, Physical Sciences, Chemistry, Earth Sciences, Biological Sciences)

School of Medicine

Medicine, Health Sciences

School of Pharmacy

Pharmacy, Pharmaceutical and Life Sciences

School of Engineering

Civil and Environmental Engineering and Architecture, Mechanical and Mathematical Engineering, Computer Science and Electrical Engineering, Materials Science and Applied Chemistry

Semiconductor Device Program will be launched in April 2024

Graduate Schools

Graduate School of
Education

Teacher Training Practices and Development Major

Graduate School of
Social and Cultural Sciences

(MC and DC) Law and Letter

Graduate School of
Science and Technology

(MC and DC) Science and Engineering

Graduate School of
Medical Sciences

(MC and DC) Medical Sciences

Graduate School of
Health Sciences

(MC and DC) Health Sciences

Graduate School of
Pharmaceutical Sciences

(MC and DC) Pharmaceutical and Life Sciences

Global Strategy

Education

Global Strategy of Kumamoto University (SGU) 2013-2023

We promote...

- Globalized Education
- International Collaborations



International Partners

277 Universities / Institutes
in 54 countries and regions

Overseas Office

9 offices in 8 countries and
regions including Taiwan

Research

The Program for Promoting the Enhancement of Research Universities (RU22) 2012-2022

Life Science

2015- **IRCMS**
International Research Center
for Medical Sciences

Science & Tech.

2016- **IROAST**
International Research Organization
for Advanced Science & Technology

Cross Appointment
System

Joint Lab

Interdisciplinary
research

Distinguished
Professor

- Overseas Joint Lab (Oxford)
- Conducting exchanges and joint research with 80 overseas institutions
- Overseas Joint Labs (Glasgow, Bordeaux, etc.)
- Conducting exchanges and joint research with 61 overseas institutions

• Advanced Research •

Research and Education Institute for Semiconductors and Informatics

Launched in April 2023

- Conduct advanced research and education on semiconductors and digital transformation
- Enhance research community in semiconductor and digital fields at Kumamoto University

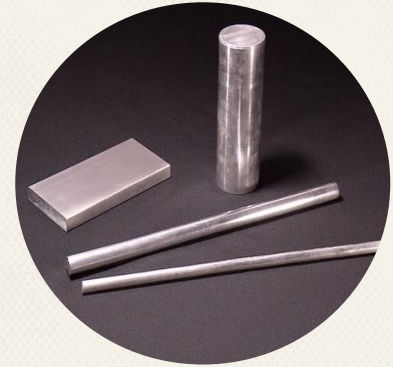


• Advanced Research •

Magnesium Research Center

Innovative Mg alloy, *KUMADAI* magnesium alloys was developed by a research group of Kumamoto University.

- Light, strong and non-flammable
- Improving fuel economy and controlling CO₂ emissions of transportation equipment such as aircraft and automobiles.



Advanced Research

Institute of Industrial Nanomaterials

Promotion of research on nanomaterials science and engineering from theoretical studies to application.



Pulsed Power Science

Kumamoto University conducts world-leading research using energy sources such as **plasma** and **shock waves**. Kumamoto University is the only university in Japan that has integrated explosion experiment facilities.



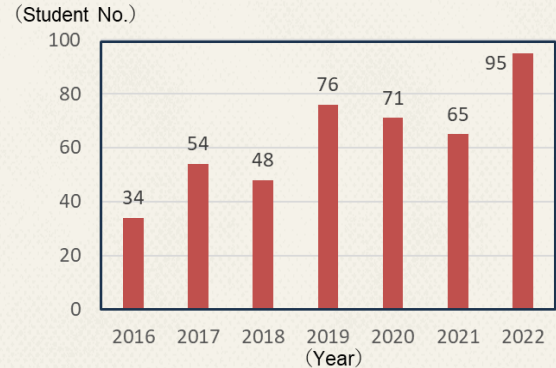
Semiconductor Project at Kumamoto University (KU)

Kumamoto University has produced many graduates to semiconductor companies and has led the semiconductor industry in Kyushu as top executives and managers.

In recent years, demand for human resources has increased, and the number of KU graduates employed has increased significantly from 34 in 2016 to 95 in 2022, which is the largest number of human resources for semiconductor companies in Kyushu.

There are a large number of semiconductor related companies in Kumamoto including SONY, TEL and others.

Of course, TSMC from Taiwan is coming to Kumamoto soon.



Human resources at KU, so far

Kumamoto Univ. has decided:

1. At least, more than 110 students will produce after 2027, constantly.
2. To strengthen research and education

Overview of the Organization on Semiconductors at KU within 2 years

Research

Start with Center

Since April, 2023

Collaborations:

etc...

Top-level researchers

Research and Education Institute for Semiconductors and Informatics

Department of Semiconductors

Department of General Informatics

Faculty of Advanced Science and Technology

Education

5 year college

Since April, 2024

School of Engineering

- Department of Civil and Environmental Engineering and Architecture
- Department of Mechanical and Mathematical Engineering
- Department of Computer Science and Electrical Engineering
- Department of Materials Science and Applied Chemistry

Semiconductor Device Program (tentative name)

Number of Students Admitted: 20 (tentative)

Since April, 2024

School of Informatics

Data Science Semiconductor Course

Number of Students Admitted: 20 (tentative)

Data Science General Course

Number of Students Admitted: 40 (tentative)

Graduate School of Science and Technology

Other Graduate Schools (Social and Cultural Science etc..)

To engineers related to the semiconductor field

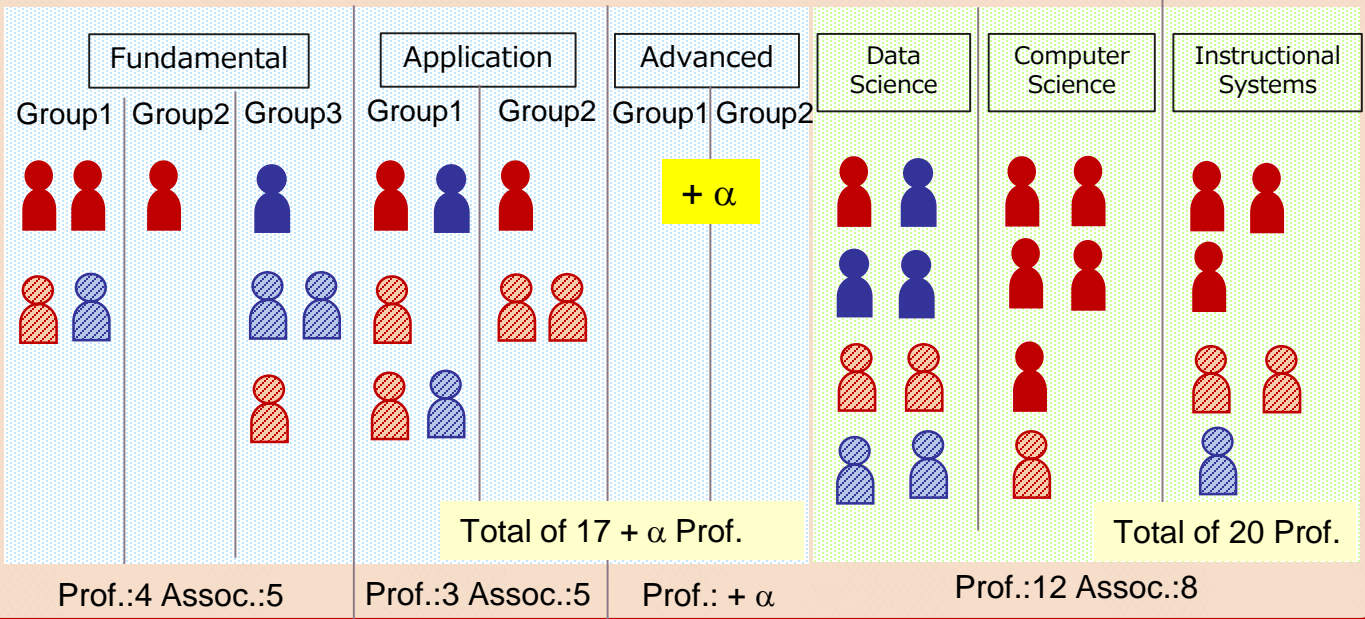
To researchers on semiconductors

To manufacturing process engineers of semiconductors and quality control in each process







Department of Semiconductors

Department of General Informatics



- (1) Total of 6 + α new professors (approximate)
- (2) Joint researchers from abroad

Milestone of Education

Fiscal Year	Action	Employed in the Semiconductor Industry (estimated) 
2023	“Research and Education Institute for Semiconductors and Informatics ” is established. 	About 70 graduates / year (by FY 2022) * Bachelor’s degree : 20 Master’s / Doctor’s degree : 50
2024	“Semiconductor Device Program, School of Engineering” and “Data Science General Course and Data Science Semiconductor Course, School of Informatics” will be established 	About 80 graduates / year * Bachelor’s degree : 30 Master’s / Doctor’s degree : 50
2027	Students of “Semiconductor Device Program, School of Engineering” “Data Science General Course and Data Science Semiconductor Course, School of Informatics” will graduate (20 graduates each)	About 110 graduates / year * Bachelor’s degree : 40 Master’s degree : 65 Doctor’s degree : 5
2032	※From 2027, these courses will produce 60 graduates each year (including graduates of 3rd year transfer students of “Semiconductor Device Course, Faculty of Engineering”). 	About 140 graduates / year * Bachelor’s degree : 40 Master’s degree : 90 Doctor’s degree : 10

Collaboration with U.S. Government (English Language Specialist Program) and more !

Supports on semiconductor actions

2022: Ministry of Economy, Trade and Industry

Special funds for laboratory renovation

➡ Renovation of facilities (clean room etc.)

2023: Ministry of Education, Culture, Sports, Science and Technology

Special budget for semiconductor activities (human resources)

➡ Hiring new professors (6 professors and more)

2023: Japan Society for the Promotion of Science

Special budget for a new facility

➡ New construction of lab. Building (5-storey including clean room)

2023: Cabinet Office (Japanese Government)

Regional Industrial Creation with Kumamoto Prefecture

“Strengthening of the semiconductor industry and formation of a new ecosystem with regional industries”

➡ Accelerating collaborative research with local companies
both system and human resources (7 new joint projects)

We really want to have a collaboration with international partners, specially Taiwan!

Thank you for your attention!