

2016 College Bulletin, National Institute of Technology, Kagawa College [Kagawa KOSEN]



# 2016 College Bulletin



National Institute of Technology, Kagawa College  
[Kagawa KOSEN]

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- 

URL <http://www.kagawa-nct.ac.jp/>

## Mission

*To develop highly qualified engineers that have a rich sense of humanity and creativity.*

*To contribute to the wealth and advancement of our local community as a driving force of intellectual and technological progress.*

National Institute of Technology, Kagawa College  
[Kagawa KOSEN]



# Message from the President

National Institute of Technology, Kagawa College was established by the incorporation and reorganization of Takamatsu National College of Technology and Takuma National College of Technology together having the long history, on October 1st, 2009. We have seven departments at the General Education Courses and two majors at the Advanced Course. We have improved and advanced the facilities and the equipment for both education and research. We are enhancing the cooperative relationship between Takamatsu Campus and Takuma Campus, and are providing favorable environments for the education. At the General Education Course, we arrange a curriculum composed of liberal education, professional education, and practical technology education for 5 years, to develop highly qualified engineers that have a rich sense of humanity and creativity, with a competency to deal with the rapid progress of science and engineering and with a harmony of intelligence, technology and spirit. Students can attain as high competency as those at a university by the study for 5 years. Moreover, students can obtain the same degree of bachelor as those who graduate a university by the study for 2 years at the Advanced Course after graduation from the General Education Course.



At Takamatsu Campus, We have Industrial and Systems Engineering Division composed of Department of Mechanical Engineering, Department of Electrical and Computer Engineering, Department of Electro-Mechanical Systems Engineering and Department of Civil Engineering for the General Education Courses. We are cultivating engineers active in the region of creative manufacturing. At Takuma Campus, We have Electronics, Information and Communication Engineering Division composed of Department of Communication Network Engineering, Department of Electronic Systems Engineering, and Department of Information Engineering for the General Education Courses. We are cultivating engineers active in the region of advanced electronics, information and communication. We have Advance Course in Industrial and Systems Engineering at Takamatsu Campus and Advanced Course in Electronics, Information and Communication Engineering at Takuma Campus. At both Advanced Course, We are supplying educations full of intellectual stimulation and international sense, and are enhancing the Science Seminar.

We have Dormitories, Counseling Room and Career Support Center to support students' welfare, study, employment and career shaping through such as internship. We have International Exchange Promotion office to develop international exchange and collaboration in education and research, and Human Resource Development Office to develop local industries and enhance the partnership with them. We are making Academic Exchange Agreements with Overseas Universities, sending students abroad for international internship or student exchange, and promoting Cooperative Research with the Private Sector eagerly. We contribute to the wealth and advancement of our local community as a driving force of intellectual and technological progress.

Both of our campuses' long histories have seen over 19,300 students graduate and secure meaningful employment in the private sector, municipal and prefectural governmental offices, universities, and research institutes. The graduates of the colleges have displayed and exemplified an impressive work ethic and job performance, leading to high praise and evaluations given by employers. We constantly embark on new challenges and develop ourselves, inheriting the excellent traditions.

Takeshi Yao  
President

# Mission and Educational Goals

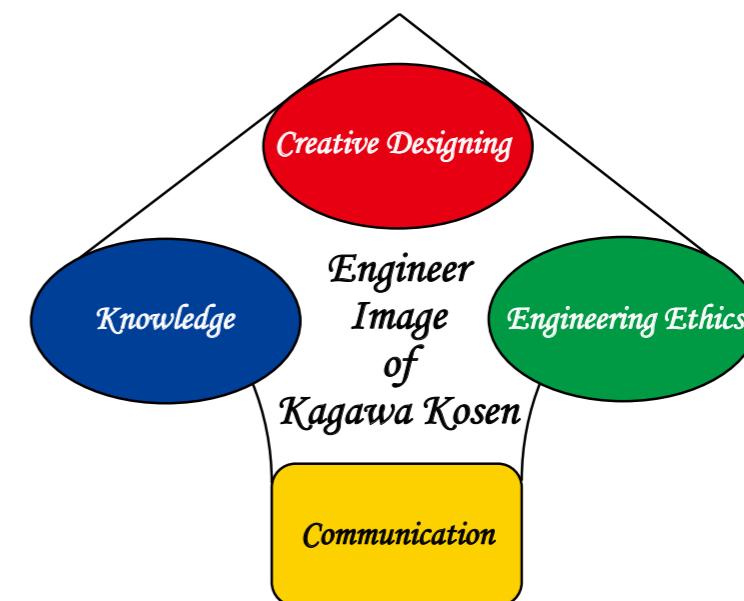
## Mission of National Institute of Technology, Kagawa College : NITKC (Kagawa KOSEN)

- To develop highly qualified engineers that have a rich sense of humanity and creativity.
- To contribute to the wealth and advancement of our local community as a driving force of intellectual and technological progress.

## Educational Goals

Kagawa KOSEN's educational objectives, based upon a detailed and comprehensive curriculum, are as follows:

- ◇ To broaden students' minds, with the aim that they will become engineers of the future that will play an instrumental role in a sustainable society.
- ◇ To train students to have the technological Knowledge and applicable skills for coping with these fast changing times.
- ◇ To train students to be engineers of the future, who can apply their imagination to tackle the complex problems of society.
- ◇ To develop the students' intellect, as well as communication skills, in order to prepare them for international career paths.



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## History

### ◇History

#### Takamatsu National College of Technology (Takamatsu KOSEN)※Takamatsu Campus of Kagawa KOSEN

**April, 1962** Takamatsu National College of Technology(Takamatsu KOSEN) was established. It consisted of two departments: the Department of Mechanical Engineering and the Department of Electrical Engineering.

**April, 1966** Takamatsu KOSEN was restructured into three departments: the Department of Mechanical Engineering, the Department of Electrical Engineering and the Department of Civil Engineering.

**April, 1990** Takamatsu KOSEN was restructured into four departments: the Department of Mechanical Engineering, the Department of Electrical Engineering, the Department of Electro-Mechanical Systems Engineering and the Department of Civil Engineering.

**April, 1999** Advanced Engineering Course was established.

**April, 2001** Takamatsu KOSEN consisted of four departments: the Department of Mechanical Engineering, the Department of Electrical and Computer Engineering, the Department of Electro-Mechanical Systems Engineering and the Department of Civil Engineering.

**April, 2004** Takamatsu KOSEN was reorganized and was affiliated with the Institute of National Colleges of Technology.

#### Takuma National College of Technology (Takuma Denpa KOSEN)※Takuma Campus of Kagawa KOSEN

**October, 1943** Kanritsu Musen Densin Koshujo Osaka Branch (National School of Radio Telecommunications, Osaka Branch) was established at Yata-mura, Naka-Kawachi-gun, Osaka

**April, 1945** Kanritsu Musen Densin Koshujo Osaka Branch was renamed Kanritsu Osaka Musen Densin Koshujo (Osaka National School of Radio Telecommunications).

**April, 1949** Kanritsu Osaka Musen Densin Koshujo was relocated in Takuma-cho, Mitoyo-gun, Kagawa, and was renamed Takuma Denpa High School (Takuma Radio Technical High School).

**April, 1971** Takuma Denpa High School became Takuma National College of Technology (Takuma Denpa KOSEN). It consisted of one department of Radio Engineering.

**April, 1976** Takuma Denpa KOSEN was restructured into two departments: the Department of Radio Engineering and the Department of Electronics.

**April, 1980** Takuma Denpa KOSEN was restructured into three departments: the Department of Engineering, the Department of Electronics and the Department of Information Engineering.

**April, 1985** Takuma Denpa KOSEN was restructured into four departments: the Department of Radio Engineering, the Department of Electronics, the Department of Information Engineering and the Department of Control Engineering.

**April, 1989** The Department of Radio Engineering was renamed the Department of Telecommunication Technology.

**April, 2004** Takuma Denpa KOSEN was reorganized and was affiliated with the Institute of National Colleges of Technology. Advanced Engineering Course was established.

In October, 2009, Takamatsu KOSEN and Takuma KOSEN were incorporated and reorganized as National Institute of Technology, Kagawa College (Kagawa KOSEN). Two divisions including seven departments were set up: Industrial and Systems Division (Takamatsu Campus) and Electronics, Information and Communications Division (Takuma Campus).

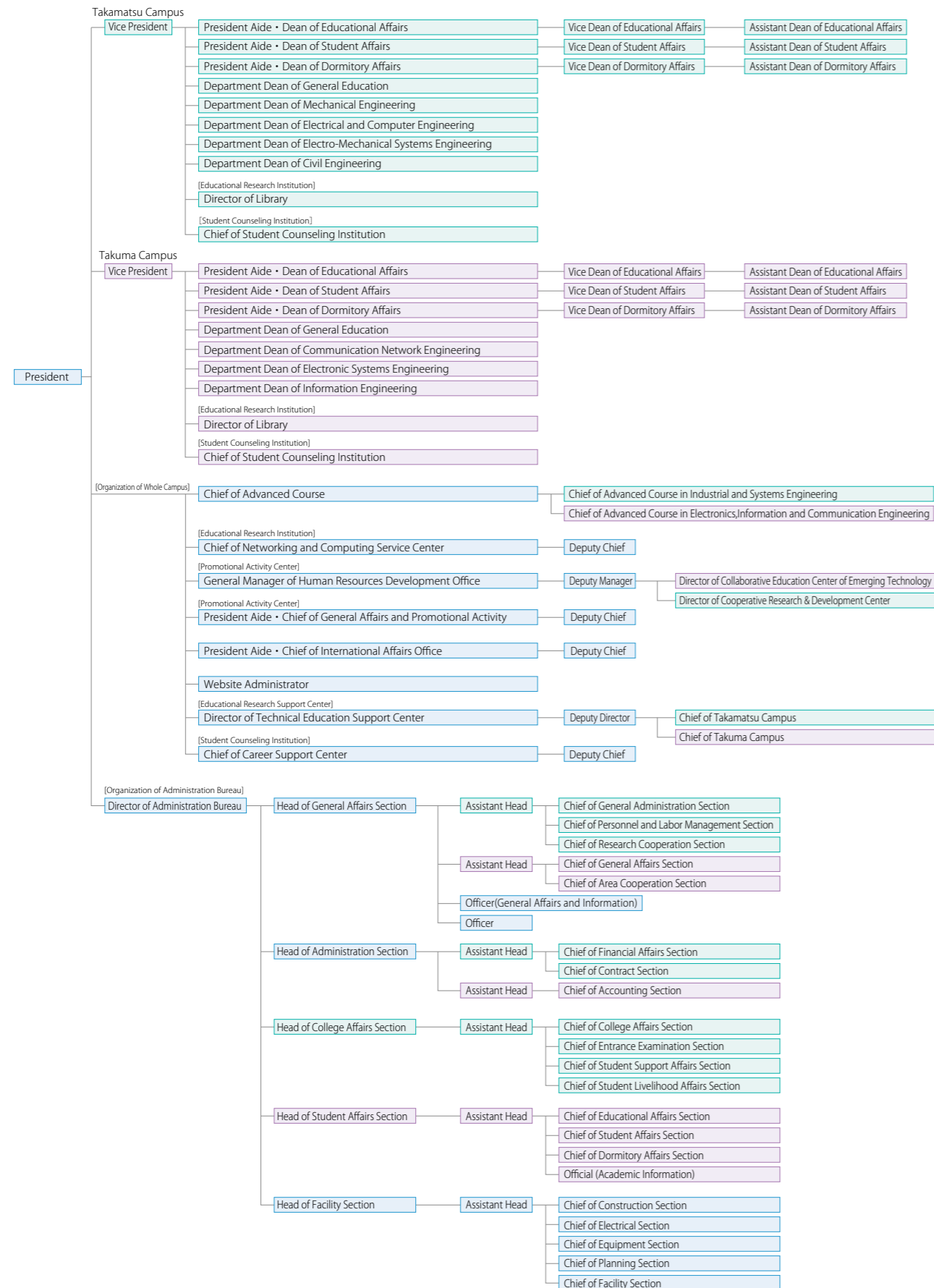
The departments are as follows: Dpt of Mechanical Engineering, Dpt of Electrical and Computer Engineering, Dpt of Electro-Mechanical Systems Engineering and Dpt of Civil Engineering (Takamatsu Campus); Dpt of Communication Network Engineering, Dpt of Electronic Systems Engineering and Dpt of Information Engineering (Takuma Campus). The Faculty of Advanced Engineering was also set up: Advanced Course in Industrial and Systems Engineering; Advanced Course in Electronics, Information and Communication Engineering. Dr. Masashi Kamon was appointed as the first president of Kagawa KOSEN.

In January, 2013, a commemoration ceremony was held to celebrate the 50th anniversary of the Takamatsu Campus and the 70th anniversary of the Takuma Campus.

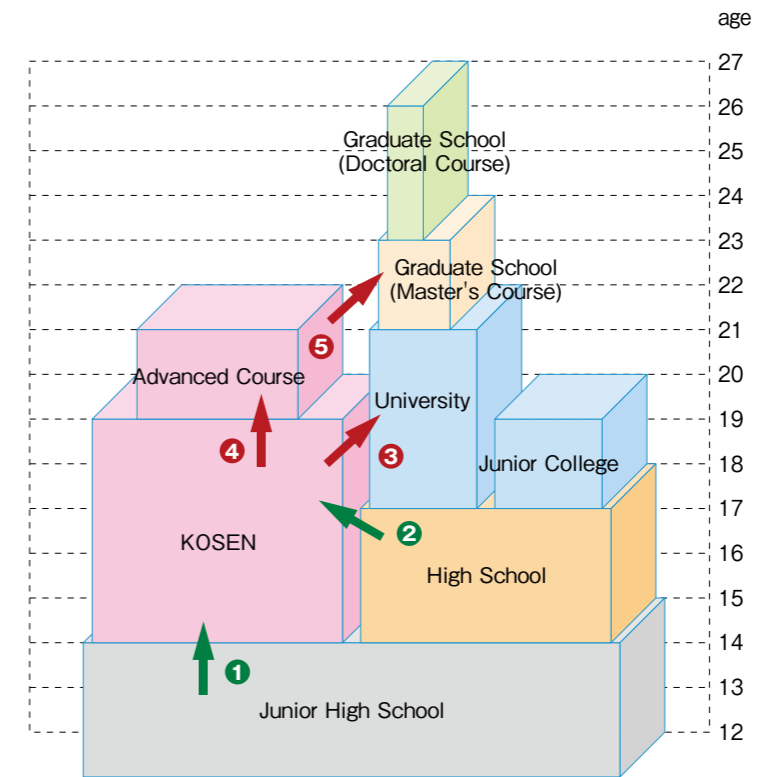
In April, 2014, Dr. Takeshi Yao was appointed as the second president of Kagawa KOSEN.

# Organization

## ◇ Chart of Organization



# School System of Japan



- ① Junior high school graduates are eligible to enroll at a KOSEN.
- ② High school graduates are eligible to enroll at a KOSEN as transfer students.
- ③ KOSEN graduates are eligible to enroll in a university as transfer students.
- ④ KOSEN graduates are eligible to enroll in an advanced course.
- ⑤ KOSEN Advanced Course graduates are eligible to enroll in a university graduate program.

## ■ KOSEN System

KOSEN system — five-year engineering education from 15-year old — was established in 1961, in response to a strong demand from industrial sector to foster engineers who sustain Japanese high economic growth at that time.

### Characteristics of KOSEN Education Upon Admission

- We admit junior high school graduates
- We enable students to engage in career and life planning at a young age

### In School Practical and Innovative Education

- We develop an curriculum in the liberal arts and professional studies
- We have highly qualified teaching staff (more than 80% of specialized subject teachers have doctoral degree)
- We provide experimental and practical training, internship and coop education
- We provide programs accredited by JABEE
- We offer international exchange opportunities

### Personality Development

- We offer student dormitories and extracurricular activities
- We hold Robot, Programming, Design and Speech contests
- We organize annual all KOSEN Athletics Competition

### Upon Graduation

- We help students to find various career paths
- We produce engineers with extensive practical creativity



# Departments

## General Education

This division offers various arts and science subjects including physical education aimed at cultivating students with wide-ranging knowledge and basic understanding required for the study of engineering. Our curriculum covers that of senior high schools putting stress on mathematics and science, and also offers some courses at the college level to the senior students.

### Fulltime Academic Staff in Department of General Education

#### [Takamatsu Campus]

Title	Name	Research Field
Prof.	KONO, Michihiro	Criminal Law & Procedure Constitution
	TANIGUCHI, Hiroaki	Algebraic Combinatorics
	SAKAMOTO, Tomotsugu	History of Ancient Chinese Thoughts
	TAKAHASHI, Hiroaki	Topology Mathematical Physics
	OKANO, Hiroshi	Inorganic Materials Chemistry Thin Film Engineering
	TAGUCHI, Jun	History of Educational Thought
	NAKASE, Mikio	Sports Methodology Coach Methodology
	ITO, Kikuyo	Cross-language Speech Perception
	SAWADA, Isao	Statistical Mechanics Condensed Matter Theory
	HASHIMOTO, Norifumi	Synthetic Organic Chemistry Catalytic Chemistry
Associate Prof.	YOSHIZAWA, Kousei	Theory of Sports Training
	NAGAHARA, Shinobu	Modern Literature
	YODA, Jun	European History
	ICHIKAWA, Ken	English Education
	HOSHINO, Ayumu	Mathematical Physics, Representation Theory
	SATO, Fumitoshi	Algebraic Geometry
	ENDO, Tomoki	Computational Physics, Theoretical Nuclear Physics
Assistant Prof.	TOBA, Motoko	English Education, Applied Linguistics
	TOKUNAGA, Shintaro	TESOL, East Asian History



Learning English by a Native Speaker



Department of General Education



A Lesson in the Multimedia Room



Class at Audio-visual Room

#### [Takuma Campus]

Title	Name	Research Field
Prof.	IDEBUCHI, Mikiro	Methodologies of Teaching English
	MINAMI, Takayuki	Differential Equation Hamiltonian System
	UCHIDA, Yuriko	Japanese History Career Education Women's Studies
	TOJO, Toshiki	Japanese Literature
	ARIMA, Hirotohi	Methodology of Coaching
Associate Prof.	HATA, Nobuoki	British Literature
	FUJIHARA, Nobuhiro	Japanese Literature
	HASHIMOTO, Ryuta	Number Theory Continued Fraction
	UEHARA, Shigenori	Geometric Topology General Topology
	MORI, Kazunori	English Teaching, CALL
	MIZUNO, Chizuko	English Education
	YOKOYAMA, Manabu	Methodology of Sports Training Health Education
	NAKAMURA, Tokuhiko	Atmospheric Chemistry
Assistant Prof.	KUROKI, Tsunehide	Theoretical Physics
	YAMAOKA, Kenjiro	Political Theory Refugee Studies

### Curriculum

Compulsory Subject	Credits
Japanese I-III	7
Geography	2
History I, II	4
Civics I, II	4
Fundamental Mathematics I-III	8
Differential and Integral Calculus I, II	7
Mathematical Analysis	3
Physics I, II	5
Chemistry I, II	5
Health and Physical Education I-IV	9
Art I, II	2
English IA, IB	6
English IIA, IIB	5
English IIIA, IIIB	4
Language Seminar	2
Science Seminar	1
Career Support	1



Department of General Education in Spring



Learning English Grammar at Multimedia LL

#### [Takamatsu Campus]

Elective Subject	Credits
Japanese Literature I	2
Human Science I-III	6
Social Science I-III	6
Environmental Chemistry	2
Principles of Physical Chemistry	2
Health and Physical Education V	1
English IV, V	5
Language Seminar II	2
Overseas English Program	1

#### [Takuma Campus]

Elective Subject	Credits
Japanese Literature II	2
Social Science I, II	4
Topics in Natural Science	1
Mathematics Seminar I-III	3
Health and Physical Education V	1
English for Specific Purposes I, II	4
Chinese I, II	4
Overseas English Program	1
Teaching Support Activity	1

### Main Experiment Facilities

	Room	Main Equipment
Takamatsu Campus	Physics Laboratory	High Vacuum Pump, Spectroscope, Induction Coil
	Chemical Laboratory	Sputtering System, PH Meter, Draft Chamber with Scrubber
	Language Laboratory	46 booths, 46 Computers, e-learning
Takuma Campus	Physics Laboratory	Audio-visual Equipment, Measurement Device of Specific Charge
	Chemistry Laboratory	Ultra Pure Water Production System, Draft Chamber with Scrubber, Drying Oven
	Multimedia Learning Laboratory	45 booths, 45 computers, e-learning

## Department of Mechanical Engineering

Mechanical engineers play a vital role in product design, development and manufacturing of industrial products in the modern industrial world as well as new challenges in developing countries. Our educational program is designed to develop creative mechanical engineers who will excel in the industrial world and fulfill their personal desire to leave a legacy of successful accomplishments.

### Fulltime Academic Staff

Title	Name	Research Field
Prof.	OKADA, Kenji	Reliability Engineering Strength and Fracture of Materials
	KIHARA, Shigefumi	Applied Mechanics
	IWATA, Hiromu	Vibration Dynamics Solar Car
	HASHIMOTO, Yoshio	Computational Dynamics
	YAMASAKI, Yojiro	Robotics Motion Control
Associate Prof.	KOJIMA, Takafumi	Thermodynamics Heat Transfer Engineering
	YOSHINAGA, Shinichi	Control Engineering
	JODAI, Yoshifumi	Fluids Engineering
Assistant Prof.	ITO, Tsutomu	Materials physics Welding Science
	TAKAHASHI, Yoichi	Precision Machining Forming Processes



Bending Test of Metallic Materials



Graduation Research



Computer Aided Design & Drafting



Solar Car and Eco Car

### Curriculum

Classification	Subject	Credits	Classification	Subject	Credits
Compulsory	Applied Mathematics	2	Elective	Mathematical Methods in Engineering	2
	Engineering Physics I	2		Engineering Physics II	2
	Introduction to Mechanical Engineering	1		Strength of Materials III	1
	Mechanics	1		Theory of Elasticity	1
	Strength of Materials I	2		Engineering Materials II	1
	Strength of Materials II	2		Heat Transfer Engineering	1
	Working Technology	2		Fluids Dynamics I	1
	Machine Element Design I	1		Electronic Engineering	2
	Machine Element Design II	2		Computer Engineering	2
	Engineering Materials I	2		Mechanism	1
	Dynamics of Machinery	2		Systems Engineering I	1
	Thermodynamics	2		Numerical Methods II	2
	Hydraulics	2		Computational Mechanics	2
	Electrical Engineering	2		Computer Aided Design & Drafting II	4
	Control Engineering	2		Technical English I	1
	Fundamental Programming	2		Technical English II	1
	Numerical Methods I	2		Strength & Fracture of Materials	1
	Mechanical Design & Drafting I	2		Heat Engines	1
	Mechanical Design & Drafting II	2		Systems Engineering II	1
	Computer Aided Design & Drafting I	3		Fluids Dynamics II	1
Fundamental of Working Exercise I	3	Special Lectures on Engineering I	1		
Fundamental of Working Exercise II	3	Special Lectures on Engineering II	1		
Fundamental of Working Exercise III	2	Job Training	1		
Mechanical Experiment I	3	Introduction to Engineering Frontier	1		
Mechanical Experiment II	3				
Graduation Research	8				

### Main Experiment Facilities

Room	Main Equipment
Machining Lab.	Ultra-Precision Machine, Wire-Cut EDM Systems, Hobbing Machine, Precision Lathe
Measuring Lab.	Non-Contact 3D Measuring Machine, Surface Finishing Indicator, Micro Hardness Tester
Material Strength Lab.	Universal Materials Testing Machine, Fatigue Testing Machine, Torsion Tester, Charpy Impact Tester
Metallographic Lab.	Optical Microscope, Electric Furnace, Hardness Tester, SPD Equipment
Sharing Lab.	Hydraulic Servo-Mechanical Fatigue Testing Machine
Dynamics Lab.	Vibration System, Vibration Meter, FFT Analyzer, Signal Analyzer
Wind Tunnel Lab.	Low Turbulent Wind Tunnel (40 m/s), Hot Wire Anemometer
Thermal Engineering Lab.	Heat Exchanger Testing Equipment
Internal Combustion Engine Lab.	Internal Combustion Engine Performance Testing Equipment, Engine Combustion Analysis System, Exhaust Gas Analyzer
Control Lab.	DC Servo Motor Testing System, BASIC FA Study Kits, Pocketcomputer Controlled AGV Testing System
Electronics Lab.	Oscilloscope, Digital Multi-Meter, Function Generator, LCR Meter
Training Factory	Lathe, Machining Center, CNC Lathe, Milling Machine, Grinding Machine, Crucible Furnace, Welding Equipment, Hydraulic Press
Drafting Room, CAD Room	Drafting Desks and Machines, Sketching Goods and Models, CAD System

## Department of Electrical and Computer Engineering

The department of electrical and computer engineering intends to educate the engineers who can contribute to the high technological society. For this purpose, the educational curriculum is designed to include the fundamental of mathematics and physics in the first stage, and applied technologies are programmed in the next stage. Furthermore, teamwork and cooperativeness, which are necessary in the social works, will be introduced in the various experiments and circuit design. Major parts of these subjects consist of the technologies of the embedded system.

### Fulltime Academic Staff

Title	Name	Research Field
Prof.	HONDA, Michitaka	Imaging Technology, Medical Radiation Physics and Technology
	SHIKAMA, Tomokazu	Semiconductor Physics Thin Films Engineering
	SHIGETA, Kazuhiro	Information and Communication Engineering Educational Technology
	TSUJI, Masatoshi	Electronic Circuit Microwave Engineering
Associate Prof.	URUSHIHARA, Shiro	Motion Control
	TARAO, Hiroo	Electromagnetic Compatibility Bioelectromagnetics
Assistant Prof.	MURAKAMI, Yukikazu	Educational Technology
	KAKIMOTO, Takeshi	Software Development Management
Research Associate	HINAMOTO, Yoichi	Digital Signal Processing
	YAMAMOTO, Masashi	Material Science



Lecture



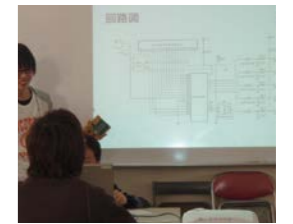
Experiment of Embedded System

### Curriculum

Classification	Subject	Credits	Classification	Subject	Credits
Compulsory	Engineering Mathematics I	2	Elective	Engineering Mathematics III	2
	Engineering Mathematics II	2		Physics	2
	Fundamentals of Physics	2		Electromagnetics II and Exercise	3
	Electric Fundamental-Mathematics	2		Electrical Circuits II and Exercise	3
	Electrical Fundamentals I	2		Electronics Circuits I and Exercise	4
	Electrical Fundamentals II	2		Introduction of Semiconductor Physics	2
	Electromagnetics I and Exercise	3		Algorithms	2
	Electrical Circuits I and Exercise	3		Study Guide for Technical English	2
	Electrical Physics	1		Communication Engineering	2
	Fundamentals of Electronics	2		Control Science	2
	Fundamentals of Measurement Engineering	2		Digital Instrumentation and Control	2
	Fundamentals of Computer Mathematics	1		Information and Coding Science	2
	Logic Circuits	1		Statistical Data Processing	2
	Fundamentals of Information Processing I	2		Signal Processing	2
	Fundamentals of Information Processing II	2		Electronic and Electronic Materials	2
	Fundamentals of Information Processing III	2		Interface	2
	Operating Systems	2		Electronics Circuit II and Exercise	2
	Information and communication network	2		Multimedia Engineering	2
	Computer Hardware	2		Electronic Device	2
	Energy Engineering in Environment	2		Computer Simulation	2
Practice of Elementary Creation I	2	Job Training	1		
Practice of Elementary Creation II	2	Special Lecture I	1		
Experiments of Electronics and Computer Science I	3	Special Lecture II	1		
Experiments of Electronics and Computer Science II	3	Introduction to Engineering Frontier	1		
Applied Experiments on Electronics and Computer Science	3				
Graduation Research	6				
Special Practice	1				
Design of Circuit	2				



Remote Teaching over the Internet



Presentation of Circuit Design

### Main Experiment Facilities

Room	Main Equipment
Measurement Control Lab.	SCR Inverter, Electric Machine Training System, He-Ne Laser, Optical Power
Electronics and Information Lab.	Curve tracer, Oscilloscope, Logic Analyzer, Microwave Measuring System, Print Board Fabrication System, Optical Communication/Optical Fiber Communication System
Materials Lab.	Lock-in Amplifier, Ultra High Resistance Meter, Liquid Nitrogen Cryostat, Thickness Meter, Green Laser
Power Electronics Lab.	Hopping Robot, Linear Motor Positioning System, Inverted Pendulum System, Image Processing System
Electromagnetic Compatibility Lab.	Uniform Magnetic Field Exposure System, Magnetic Field Measurement Device, Work Station
Electronics Lab.	Oscilloscope, Function Generator, DC Power supply, Q Meter, Digital Frequency Counter, Pulse Circuit Trainer
Acoustical Information Lab.	Anechoic Chamber, Acoustic Measuring System, Ultrasound Detector
Computer and Communication Engineering Lab.	Logical Circuit Experiment Apparatus, Semiconductor Element Experiment Apparatus, Arithmetic Circuit Trainer, AD/DA Converter Trainer, Logic Analyzer

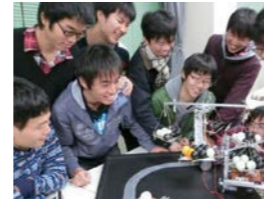


## Department of Electro-Mechanical Systems Engineering

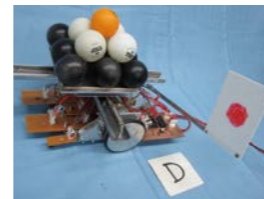
The department has a curriculum to educate students standing on mechatronics which is a combined engineering field that consists of mechanics, electronics, control engineering and computer science. The students are expected to have the role of not only simple manufacturing but also design & development, quality management, maintenance & inspection and so on in the production process.

### Fulltime Academic Staff

Title	Name	Research Field
Prof.	HIRAOKA, Nobuaki	Mechatronics
	SOGO, Hiroyuki	Kinematics Robotics
	TOKUNAGA, Hidekazu	Computational Learning Theory Web Mining
Associate Prof.	YURA, Satoshi	Control Engineering Motion Control
	SOUMA, Takeshi	Energy Engineering Energy Materials
	SHIMASAKI, Shin-ichi	Electromagnetic Processing of Materials
	HENMI, Tomohiro	Control Engineering
	SHOBAKO, Shinichiro	Welding & Joining Arc Plasma
Research Associate	ISHII, Kohei	Biomedical Engineering
	TSUMORI, Nobuhiro	Nanophotonics Near-field Optics



Checking Robots



An Autonomous Robot



Working with Milling Machine



Checking Electronic Components

### Curriculum

Classification	Subject	Credits	
Compulsory	Applied Mathematics	2	
	Engineering Mathematics	2	
	Physics I	2	
	Physics II	2	
	Manufacturing Processes	2	
	Fundamental Mechanics	2	
	Mechanics of Materials I	2	
	Engineering Materials I	2	
	Thermal Engineering I	1	
	Fluid Engineering I	1	
	Electric Circuits	2	
	Electronic Circuits	2	
	Information Processing I	2	
	Mechatronics I on Basis	3	
	Mechatronics II on Basis	3	
	Mechatronics III on Basis	3	
	Mechatronics System Design	1	
	System Control Engineering I	2	
	Technical Japanese Expression I	1	
	Technical Japanese Expression II	1	
	Training and Exercise I on MONOZUKURI Basis	3	
	Training and Exercise II on MONOZUKURI Basis	3	
	Training and Exercise III on MONOZUKURI Basis	2	
	Experiment I	5	
	Experiment II	3	
	Graduation Research	6	
	Elective	Mechanical Engineering Design	2
		Mechanics of Materials II	2
Engineering Materials II		1	
Thermal Engineering II		1	
Fluid Engineering II		1	
Electronics		2	
Information Processing II		2	
Information Processing III		2	
System Control Engineering II		2	
Mechanical Dynamics		2	
Robotics		2	
Mechanical Instrumentation		1	
Statistical Analysis		2	
Technical English		2	
Computer Network		2	
Welding and Joining	2		
Laser Processing	2		
Electromagnetics	2		
Electronic Instrumentation	2		
Sensor Devices	2		
Planning	2		
Special Lecture I	1		
Special Lecture II	1		
Job Training	1		
Introduction to Engineering Frontier	1		

### Main Experiment Facilities

Room	Main Equipment
Engineer Material Lab.	Optical Microscope, Electric Furnace, Video Microscope, Vickers Brinell and Rockwell Hardness Tester, SPD Equipment
Mechanics of Material Lab.	300kN Universal Testing Machine, Torsion Tester Charpy Impact Testing Machine, Rotating Bending Fatigue Testing Machine
Thermal Engineering Lab.	High-frequency Induction Furnace, Electrometer, Laser Displacement Sensor, High-speed Camera, Heat Exchanger Testing Equipment
Electronics Lab./Electronic Control Lab.	Oscilloscope, Digital Multi-Meter, Function Generator, Electronic Voltmeter, Universal Counter, LCR Meter, PCB-CAD/CAM
CAD Room	Video Projector, Personal Computer, 3D CAD
Exercise Room	Video Projector, Personal Computer, 3D CAD, 3D Printer
Control Lab.	Temperature Control Testing System, Water Level Control Testing System
FA Training Factory	3D Modeling Machine, Vertical Milling Machine, Drilling Machine, Band Sawing Machine
Measuring Lab.	Air Micrometer, Micro-indicator, Tool Micrometer, Microscope
Training Factory	Engine Lathe, Drilling Machine, Universal Milling Machine, Universal Band Sawing Machine, Machining Center, Welders

## Department of Civil Engineering

The department of civil engineering is working on fostering engineers who can contribute to the construction of infrastructure supporting safe and comfortable lives of citizens and the maintenance of the natural environment which is also deeply related to the construction of infrastructure.

### Fulltime Academic Staff

Title	Name	Research Field
Prof.	KOTAKE, Nozomu	Geotechnical Engineering Geoenvironmental Engineering
	MUKAITANI, Mitsuhiko	Geotechnical Engineering Irrigation Pond Science
Associate Prof.	TSURUMOTO, Yoshihiro	Hydromechanics Engineering Coastal Engineering
	MIYAZAKI, Kosuke	Infrastructure Planning Transportation Planning
	TAGAWA, Tadashi	Sanitary Engineering Environmental Engineering
Assistant Prof.	HAYASHI, Kazuhiko	Concrete Engineering Maintenance Engineering
	YANAGAWA, Ryoichi	Coastal Disaster Management Engineering Coastal Ecosystem Engineering
Research Associate	IMAOKA, Yoshiko	Urban Planning Welfare Engineering
	TAKAHASHI, Naoki	Hydraulic Engineering Ecological Engineering
	SUZUKI, Mariko	Agricultural Engineering Geoenvironmental Engineering



Loading of Reinforced Concrete beam



Surveying



Field Work on River



Quality Analysis of River Water

### Curriculum

Classification	Subject	Credits	
Compulsory	Physics I	2	
	Applied Mathematics I	2	
	Introduction to Civil Engineering	2	
	Basic Drawing	1	
	Fundamental Mechanics I, II	4	
	Structural Mechanics I	3	
	Structural Materials	2	
	Structural Design	3	
	Basis of Disaster Prevention Engineering	2	
	Regional Disaster Prevention Engineering	1	
	Elements of Environmental Engineering	1	
	Environmental Engineering I	2	
	Regional Environmental Engineering	1	
	Fundamental Information Processing	2	
	Advanced Computer Engineering	2	
	Surveying I, II	2	
	Urban and Regional Planning	2	
	Regional Urban and Regional Planning	1	
	Practices in Civil Engineering I, II, III	3	
	Engineering Study with Creative Training	2	
	Experiment and Practice in Civil Engineering I, II	4	
	Civil Experiments and Exercises I, II, III	6	
	Civil Engineering Design and Draft I, II	4	
	Graduation Research	6	
	Elective	Physics II	1
		Applied Mathematics II	2
		Introduction to Electrical Engineering	1
		Structural Mechanics II	2
Soil Mechanics		2	
Hydromechanics		2	
Construction Method		2	
Hydrology		1	
Coastal Engineering		1	
Environmental Engineering II		2	
Environmental Impact Assessment		2	
Applied Computer Engineering		2	
Surveying III	2		
Structural Engineering	2		
Geotechnical Engineering	2		
Information Processing Engineering	2		
Structures in Architecture	2		
Advanced Environmental Engineering	2		
Job Training	1		
Special Lecture I	1		
Special Lecture II	1		
Introduction to Engineering Frontier	1		

### Main Experiment Facilities

Room	Main Equipment
Structural Engineering Lab.	Static and dynamic loading machine, Beam testing machines, Digital static strain meters, Dynamic strain meters, Universal counter, Multi-channel data recorder, Servo-type 1D&2D shaking tables, 2D soil tanks
Materials Engineering Lab.	Universal material testing machine (Cap. of 3000kN), Strain control universal testing machine, Revolving-blade concrete mixer, Center hole oil jacks and oil pumps, testing apparatuses for various concrete, Concrete curing water bath, Data loggers, Digital displacement meters, Electronic balances(9seats)
Hydraulic Engineering Lab.	Three dimensional channel, Movable channels, Wave making channels, Shape-created weir, Pipe line with a Venturi meter, Wave height indicators, Various recorders
Geotechnical Engineering Lab.	Automatic consolidation testing apparatus, Universal compression testing apparatus, Cyclic triaxial compression test apparatus, Large-scaled universal direct shear apparatus, Falling head permeability test apparatus, B-type viscometer, High speed camera, Various soil testing apparatus
Environmental Engineering Lab.	Total organic carbon analyzer, Ion chromatograph, Gas chromatograph, CHN analyzer, Autoclaves, Centrifuge, Ultra pure water system, Acid rain collect, Cyclic Triaxial test apparatus, Constant temperature ovens
Equipment room	Global Navigation Satellite Systems, Geographic Information System, Remote Sensing, Total station, Digital type theodolites(4set), Automatic levels,
Drafting room	Electro-optical distance meters(4set), Plane table, Planimeters, Stereoscope
	Drafting table angle boards(45set), Plate girder model, Truss bridge model, Various drafting instruments

## Department of Communication Network Engineering

Both modern industry and society rely heavily on telecommunication systems, which are also known as a “neural network” of society. The constituents of the systems are electric wires, optical fibers and electromagnetic waves, as well as a great deal of computers. The aim of the Department of Communication Network Engineering is to foster competent engineers in this promising field of telecommunications. The curriculum is organized so that students can qualify for various national licenses such as an On-the-Ground I-Category Special Radio Operator, or a First-Class Technical Radio Operator for On-the-Ground Services.

### Fulltime Academic Staff

Title	Name	Research Field
Prof.	FUKUNAGA, Tetsuya	Information Theory Communication Theory
	SHIOZAWA, Takahiro	Optical Electronics Microwave Photonics
	SAWADA, Shiro	Theoretical Physics
	INOUE, Tadaaki	Communications Measurement
	ISSHIKI, Hiromi	Biomedical Engineering
Associate Prof.	YOKOUCHI, Takashi	Applied Technology of Optical Fiber
	MANABE, Katsuya	Electromagnetic Theory Microwave Theory and Techniques
	TAKAJO, Hideyuki	Educational Technology Ubiquitous Computing
	SHOHON, Toshiyuki	Coding Theory Communication Engineering
	ONO, Akira	Telecommunication Electronic Circuit
	KUMEKAWA, Kazuya	Computer Networks
	SHIRAISHI, Keiichi	Computer Algebra e-Learning
	KUSAMA, Yusuke	Microwave Engineering
Assistant Prof.	KAWAKUBO, Takashi	Field Emission Surface Physics



Wireless Communication Experiment



Computer Literacy



Radar Detection



Computer Network Experiment

### Main Experiment Facilities

Room	Main Equipment
Electromagnetic Anechoic Chamber	EMI (Electromagnetic Interference) Receiver, CVCF (Constant-voltage Constant-Frequency) Power Supply, BiLog Antenna, Artificial Mains Network, Absorbing Clamp, Turn Table
Photonics Lab.	Sampling Oscilloscope, Spectrum Analyzer, Logic Scope
Digital Circuit Lab.	Pulse Pattern Generator, Error Rate Detector, Optical Spectrum Analyzer, Optical Amplifier, Optical Power Meter, Wavelength Variable Optical Attenuator
Information Network Exercise Room	Training Equipments for LAN (Local Area Network) Integration (Routers, Switching Hubs, Wireless LAN Access Points, Personal Computers)
Applied Electromagnetic Wave Lab.	Radar, Satellite Compass, AIS (Automatic Identification System) Receiver, Radio Direction Measurement Equipment, Radio Transmitter, Radio Receiver, Microwave Fundamental Measurement Equipment

### Curriculum

Classification	Subject	Credits
Compulsory	Applied Mathematics	2
	Probability and Statistics	2
	Applied Physics I	2
	Applied Physics II	2
	Electric Engineering	2
	Information Processing I	2
	Information Processing II	2
	Digital Circuits I	2
	Electric Circuits I	2
	Electric Circuits II	2
	Electromagnetics I	2
	Electromagnetics II	2
	Electronic Circuits I	2
	Electronic Circuits II	2
	Electric and Electronic Measurements I	2
	Electronics	2
	Seminar on Communication Engineering	4
	Creative Experiments and Practices	4
	Experiments and Practices	2
	Experiments in Communication Network Engineering	2
	Experiments in Communication Engineering I	3
	Experiments in Communication Engineering II	4
	Graduation Research	12
	Information Processing III	2
	Logic Circuit Design	2
	Electric and Electronic Measurements II	2
	Wireless Communication Engineering I	2
Wireless Communication Engineering II	2	
Antennas and Propagation	2	
Antenna Engineering	2	
Communication System A	2	
Communication System B	2	
Telecommunications Law I	1	
Telecommunications Law II	1	
Network Theory	2	
Computer Networks I	2	
Computer Networks II	2	
Information Theory	2	
Elective	Radio Wave Engineering	1
	Seminar on Radio Engineering	2
	Data Communications	2
	Control Engineering	2
	Semiconductor Electronics	2
	Digital Image Processing	2
	Signal Processing	2
	Optoelectronics	2
	Mathematics for Information Science	2
	Information Security	2
	Network Programming	2
	Computer Science	2
System Engineering	2	
Environment and Human Society	1	
Factory Training	1	
Special Lectures I	1	
Special Lectures II	1	
Introduction to Engineering Frontier	1	

## Department of Electronic Systems Engineering

In light of the advancements of mechatronics and Information technologies, there is a large demand for engineers in the development and integration of computer science, robotic systems and telecommunications. The program in our department is designed to offer students many options from various fields such as hardware, software, electronics and communication technologies. We combine theory and practical application in the same course which provides practical laboratory experience. Our goal is to cultivate ingenuity and innovation in our students and provide them with all skills necessary for a successful career in the electronics industry.

### Fulltime Academic Staff

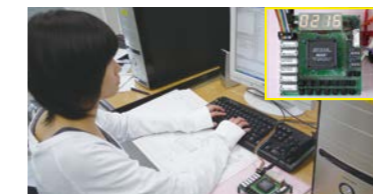
Title	Name	Research Field
Prof.	NAGAOKA, Shiro	Integrated Circuits
	YAGI, Masakazu	Solid State Physics
Associate Prof.	MIKAWA, Michio	Solid State Physics
	JOHNSTON, Robert Weston	Computer Science
	TSUKIMOTO, Isao	Electronic Circuits
Assistant Prof.	TENZOU, Hideki	Energy Engineering
	MORIMUNE, Taichiro	Solid State Physics
Research Associate	SHIMIZU, Tomo	Semiconductor Devices
	FUJII, Hiroyuki	Robot Engineering
Research Associate	IWAMOTO, Naoya	Semiconductor Devices
	SUGIMOTO, Masashi	Robotics



Robot Manufacture Experiment using MINDSTORMS



Fundamental Electronic Circuit Experiments in English



Digital Circuit Manufacture Experiment using VHDL (in 5th Grade)



Graduation Work with Region Cooperation (in 5th Grade)

### Main Experiment Facilities

Room	Main Equipment
Common Lab.	Liquid Cryst. Tunable Filters, Cooled CCD Camera, Multispectral Imaging System, Hyperspectral Camera
Digital Circuit Lab.	Equipment of Supply Current Test to Detect Lead Opens of CMOS ICs, Oscilloscope, Current Probe, QuartusII (synthesis tool), ModelSim (simulation tool)
Computer Engineering Lab.	Oscilloscope, Radiation Detector, Analog Waveform Processing System
Circuit Design Lab.	Laser Surface Processing System, Photoelectron Yield Spectroscopy, Interferometric Film Thickness Measurement System, Vacuum Evaporator
Physical properties Lab.	Laser Displacement Sensor, Optical Element (polarizer, quarter-wave plate)
Optoelectronics Lab.	Diffraction-grating monochromator (F=1 m, 30cm, 20cm), He-Cd laser, Ar ion laser, Cryogenic refrigerator
Electronics Lab.	Infrared Thermal Camera, 3D Printer, 3D Scanner, Tabletop Microscope, Non-Mydriatic Auto Fundus Camera, Pulse Oximeter



## Department of Information Engineering

The department offers students an opportunity to acquire the theoretical fundamentals of computer science, and learn how to apply this practical knowledge to everyday problems. The department aims to educate the students to be able to perform tasks such as the following:

- Information system development
- Application development and integration, such as sound and image processing, computer networking.

### ◆ Fulltime Academic Staff

Title	Name	Research Field
Prof.	MATSUSHITA, Hiroaki	Design and Analysis of Algorithms
	FUKUMA, Kazumi	Physics
	MIYATAKE, Akiyoshi	Educational System Engineering
	TOKUNAGA, Shuichi	Image Processing
	KAWATA, Susumu	Programming Instruction
Associate Prof.	SAWARAME, Masashi	Information Systems
	KAWATA, Jun	Plasma Surface Interaction
	KANAZAWA, Keizo	Image Processing
	KONDOH, Yuji	Computer Algebra
Assistant Prof.	OKUYAMA, Shingo	Algebraic Topology
	KAWAZOME, Hayato	Plasma Spectroscopy
	SASAYAMA, Manabu	Information Retrieval Machine Translation



Simulator of Microcomputer



Software-Driven Radio-Control Car

### ◆ Curriculum

Classification	Subject	Credits
Compulsory	Applied Mathematics	2
	Probability and Statistics	2
	Applied Physics I	2
	Applied Physics II	2
	Electric Engineering	2
	Electric Circuits I	2
	Electromagnetics	2
	Electronic Circuits I	2
	Digital Circuits I	2
	Digital Circuits II	2
	Information Engineering	2
	Computer Architecture	2
	Information Processing I	2
	Software Design and Development I	2
	Software Design and Development II	2
	Seminar on Information Engineering	6
	Creative Experiments and Practices	4
Elective	Experiments and Practices	2
	Experiments in Information Engineering	2
	Experiments in Information Engineering I	4
	Experiments in Information Engineering II	3
	Graduation Research	12
	Mathematics for Information Science	2
	Numerical Analysis	2
	Communication Theory	2
	Electric Circuits II	2
	Semiconductor Electronics	2
	Digital Signal Processing	1
	System Engineering	2
	Automatic Control	2
	Automaton Theory	2
	Data Structures and Algorithms	2
Programming Language	2	
Operations Research	2	
System Programming	2	
System Software	2	
Human Interface	1	
Compiler	2	
Information System I	2	
Information System II	2	
Knowledge Engineering I	2	
Knowledge Engineering II	2	
Digital Image Processing	2	
Database Management System	2	
Telecommunication System I	2	
Telecommunication System II	2	
Computer Networks I	2	
Computer Networks II	2	
Information Security	2	
Technical English	1	
Information Science I	1	
Information Science II	2	
Environment and Human Society	1	
Factory Training	1	
Special Lectures I	1	
Special Lectures II	1	
Introduction to Engineering Frontier	1	



Network Integration



Demonstration in Programming Contest

### ◆ Main Experiment Facilities

Room	Main Equipment
Control Circuit Lab.	3D Input/Output Device(3D Scanner, 3D Milling machine) 3D CAD/CAM software
Engineering Science Lab.	Educational design and prototyping platform, LabVIEW, Electronic Circuit Simulator
Network Lab.	Experiment equipments for network skill acquisition(Router,L2,L3 switch)
NLP Lab.	The server for analyzing Big Data
ICT Lab.	203.2cm diagonal screen size Integrated Touch Display

## Faculty of Advanced Engineering(Bachelor's Degree Program)

The Faculty of Advanced Engineering at Kagawa KOSEN aims to develop analytical, problem-solving skills as well as research ability of students so that they become practical and creative engineers who will play important roles in various industries, and contribute to the regional economy and society through collaborative projects.

To accomplish this goal, the Faculty of Advanced Engineering is comprised of the Courses in Industrial and Systems Engineering Program at the Takamatsu Campus, and the Course in Electronics, Information and Communication Engineering Program at the Takuma Campus.

### ■ Educational Objectives

The educational objectives of the Faculty of Advanced Engineering at Kagawa KOSEN are:

- ◆ Students will acquire highly specialist knowledge in their engineering fields and develop analytical skills by attending advanced lectures and proceeding their thesis research.
- ◆ Students will acquire broad knowledge and problem-solving skills from practical experience in other related fields to play leading roles in interdisciplinary areas.
- ◆ Students will learn ethical issues and responsibilities as engineers through collaborative researches with local educational organizations and companies.
- ◆ Students will acquire global viewpoints and communication skills in Japanese and English, by participating in workshops and scientific conferences inside and outside of the college.

Course	Title	Name	Additional Post
Industrial and Systems Engineering	Prof.	OKADA, Kenji	Department of Mechanical Engineering
		SHIGETA, Kazuhiro	Department of Electrical and Computer Engineering
	Associate Prof.	HENMI, Tomohiro	Department of Electro-Mechanical Systems Engineering
Electronics, Information and Communication Engineering	Prof.	MUKAITANI, Mitsuhiro	Department of Civil Engineering
		INOUE, Tadaaki	Department of Communication Network Engineering
	Prof.	NAGAOKA, Shiro	Department of Electronic Systems Engineering
		MATSUSHITA, Hiroaki	Department of Information Engineering



Advanced Course(Takamatsu Campus)



Advanced Course(Takuma Campus)

## Advanced Course in Industrial and Systems Engineering (Takamatsu Campus)

This course has four sub-courses to educate students to be practical engineers with problem-solving skills and the creativity to develop technologies.

### Mechanical Engineering Course

This course is for future mechanical engineers with problem-solving skills and original creativity.

### Electrical and Computer Engineering Course

This course is for future electrical engineers, electronic engineers, computer engineers and researchers.

### Electro-Mechanical Systems Engineering Course

This course is for future mechatronics engineers with well-founded skills who contribute to the human happiness and welfare.

### Civil Engineering Course

This course is for future civil engineers with knowledge of design, planning, disaster prevention and environmental preservation techniques.

#### Curriculum

Classification	Subject	Credits	
Liberal Arts	Compulsory	Management Theory	2
		TOEIC Preparation	2
	Elective	Jurisprudence	2
Engineering Basic	Compulsory	Engineer Ethics	2
		Topics in Mathematics I	2
	Elective	Modern Physics	2
		Intellectual Property Rights	2
		English for Technical Purpose	2
		Topics in Mathematics II	2
		Physical Chemistry	2
		Analytical Chemistry	2
		Applied Physics	2
		Introduction to Civil Engineering	2
Overseas English Program	1		
Core Eng. Subjects	Compulsory	Experiments and Practicals I	2
		Experiments and Practicals II	2
	Elective	Thesis Research I	6
		Thesis Research II	10
		Seminar I	2
		Seminar II	2
		Special Lectures	2
		Internship I	1
		Internship II	2
		Internship III	4
Internship IV	6		



Analysis using Motion Capture



Atmospheric Pressure Cold Plasma Generator

Classification	Subject	Credits	
Eng. Subjects of ME Course	Elective	Internal Combustion Engines	2
		Computational Mechanics	2
		Elasticity and Plasticity	2
		Advanced Strength and Fracture of Materials	2
		Matrix Vibration Analysis	2
		Reliability Engineering	2
Eng. Subjects of EC Course	Elective	Electromagnetic Compatibility	2
		Modern Control Theory	2
		Energy Conversion Engineering	2
		Project Management Theory	2
		Solid State Electronics	2
		Integrated Circuits	2
		Semiconductor Physics	2
		Digital Technologies	2
		Information and Communication Engineering	2
		Microwave Engineering	2
Digital Signal Processing	2		
Eng. Subjects of MS Course	Elective	Knowledge Computing	2
		Image Processing Engineering	2
		Advanced Heat Transfer	2
		Advanced Dynamics	2
		Optimization Theory	2
		Advanced Computer Processing	2
		Advanced Joining Technologies	2
		Advanced Energy Engineering	2
		Advanced Control Engineering I	2
		Advanced Control Engineering II	2
Mechatronics	2		
Eng. Subjects of CV Course	Elective	Seismic Design	2
		Durability Design	2
		Prevention of Natural Disasters I	2
		Environmental Disaster Prevention Engineering II	2
		Advanced Hydromechanics	2
		Infrastructure Planning	2
		Environmental Ethics and Management	2
		Continuum Mechanics	2
		Advanced Structural Materials	2
		Computational Analysis in Civil Engineering	2
		Civil Mathematical Planning	2
		Information Technology and Systems	2
Seminars on Civil Engineering	2		

ME Course...Mechanical Engineering Course

EC Course...Electrical and Computer Engineering Course

MS Course...Electro-Mechanical Systems Engineering Course

CV Course...Civil Engineering Course

## Advanced Course in Electronics, Information and Communication Engineering (Takuma Campus)

This course has two sub-courses to educate students to be practical, highly sophisticated engineers with knowledge of originality in electronics, information and communication engineering.

### Electronics and Information Engineering Course

This course is an educational program of engineers who follow the standards of JABEE (Japan Accreditation Board for Engineering Education).

### Electronics, Information and Communication Engineering Vocational Course

This is the course in which students can be intent on the achievement of technology and expertise.

#### Curriculum

Classification	Subject	Credits	
Liberal Arts	Compulsory	Communicative English I	2
		Communicative English II	2
	Elective	Advanced Japanese Literature	2
Engineering Basic	Compulsory	Engineer Ethics	2
		Advanced Physical Science	2
	Elective	Topics Applied Mathematics	2
		Intellectual Property	2
		English for Engineers	2
		Engineering Mathematics	2

Classification	Subject	Credits	
Common Special Subjects	Compulsory	Thesis Research I	6
		Thesis Research II	4
		Experiments and Exercise I	4
		Experiments and Exercise II	6
	Elective	Quantum Mechanics	2
		Introduction to Information Technology	2
		Digital Signal Processing	2
		Applied Electromagnetics	2
		Graph Theory	2
		Information Networks	2
		Specialized Electronic Circuits	2
		Industrial Instrument Engineering	2
		System Control Engineering	2
		Algorithms and Data Structures	2
Multi-Media Engineering	2		
Image Processing	2		
Special Lectures	2		
Internship I	1		
Internship II	2		
Internship III	4		
Internship IV	6		
Eng. Subjects of CN	Elective	Communication Engineering	2
		Radio and Light Wave Engineering	2
		Optical Communications	2
Eng. Subjects of ES	Elective	Specialized Radio Engineering	2
		Applied Solid State Physics	2
Eng. Subjects of IT	Elective	Integrated Electronics	2
		Digital Control Engineering	2
		Object Oriented Programming	2
	Applied Network Programming	2	
	Database Design	2	

CN...Communication Network

ES...Electronic Systems

IT...Information



Collaborative Research Experiments



Patents Awarded to Students



# International Affairs

## ◆ Academic Exchange Agreement with Overseas Institutions

University / Faculty	Country / Region	Since
Dongyang Mirae University (DMU)	South Korea	Aug. 2005
Danang University of Technology (DUT)	Vietnam	Jun. 2009
Cheng Shiu University (CSU)	Taiwan (R.O.C.)	Dec. 2009
College of Engineering, Seoul National University (SNU)	South Korea	Jun. 2010
Universiti Teknologi MARA (UiTM)	Malaysia	Aug. 2010
Christchurch Polytechnic Institute of Technology (CPIT)	New Zealand	Jun. 2012
University of Caen Basse-Normandie	France	Jul. 2013
Rajamangala University of Technology Thanyaburi (RMUTT)	Thailand	Aug. 2014
Thai-Nichi Institute of Technology (TNI)	Thailand	Mar. 2015
Universite Francois-Rabelais Tours (UFRT)	France	Dec. 2015

## ◆ Organization of International Symposiums/Seminar (2011-2015)

- ◆ "International Symposium on Geo-Environment Engineering (GEE)," May 2011, May 2012, May 2013, May 2014 and May 2015.
- ◆ "International Joint Workshop on Technology in Education and Educational Research," Mitoyo, Kagawa, Japan, Jul. 2011 and Oct. 2013.
- ◆ "International Postgraduate Seminar (IPGS)," Shah Alam, Malaysia, Jun. 2013 and Jun. 2014.
- ◆ "International Civil and Infrastructure Engineering Conference (InCIEC)," Shah Alam, Malaysia, Sep. 2015.
- ◆ "International Conference on Nanoscience, Nanotechnology and Nanoengineering (IC-NET)," Shah Alam, Malaysia, Mar. 2014 and Feb. 2015.
- ◆ "International Seminar on NanoScience and Nanotechnology (Nano-Scitech 2016)," Shah Alam, Malaysia, Feb. 2016.

## ◆ International Exchange and Academic Activities (2011-2015)

- ◆ Exhibition by NITKC students at the Korea Electronics Show with DMU, Oct. 2010, Oct. 2012 and Oct. 2014.
- ◆ International internship at local offices of Japanese firms; in Thailand (2009 and 2015), Philippines (2010, 2012), China (2011 and 2013), Indonesia (2012), Hong Kong (2013 and 2016), Singapore (2013), Taiwan (2013) and U.S. (2013).
- ◆ "Engineering Class in English" by Visiting Professors from overseas; at Dept. of Civil Eng. (Oct. 2010), Dept. of Mechanical Eng. (Jan. 2011), Dept. of Electrical and Computer Eng. (Sep. 2011), Dept. of Communication and Network Eng. (Jan. 2013), Dept. of Communication Network Engineering (Oct. 2013), Dept. of Electronic Systems Engineering (Oct. 2013), Advanced course in Electronics (Jan. 2013 and Oct. 2013) Dept. of Civil Eng. (Jun. 2013), Dept. of Civil Eng. (Oct. 2013) and all Departments (Oct. 2013).
- ◆ Student exchange to NITKC, from UiTM (Jul. to Oct. 2011), from CSU (Jul. to Aug. 2014) and from RMUTT (Apr. 2015).
- ◆ Research exchange with CSU and UiTM, Mar. 2011, Mar. 2012, Mar. 2013, Mar. 2014, Sep. 2014, Mar. 2015 and Mar. 2016.

## ◆ International Students at NITKC

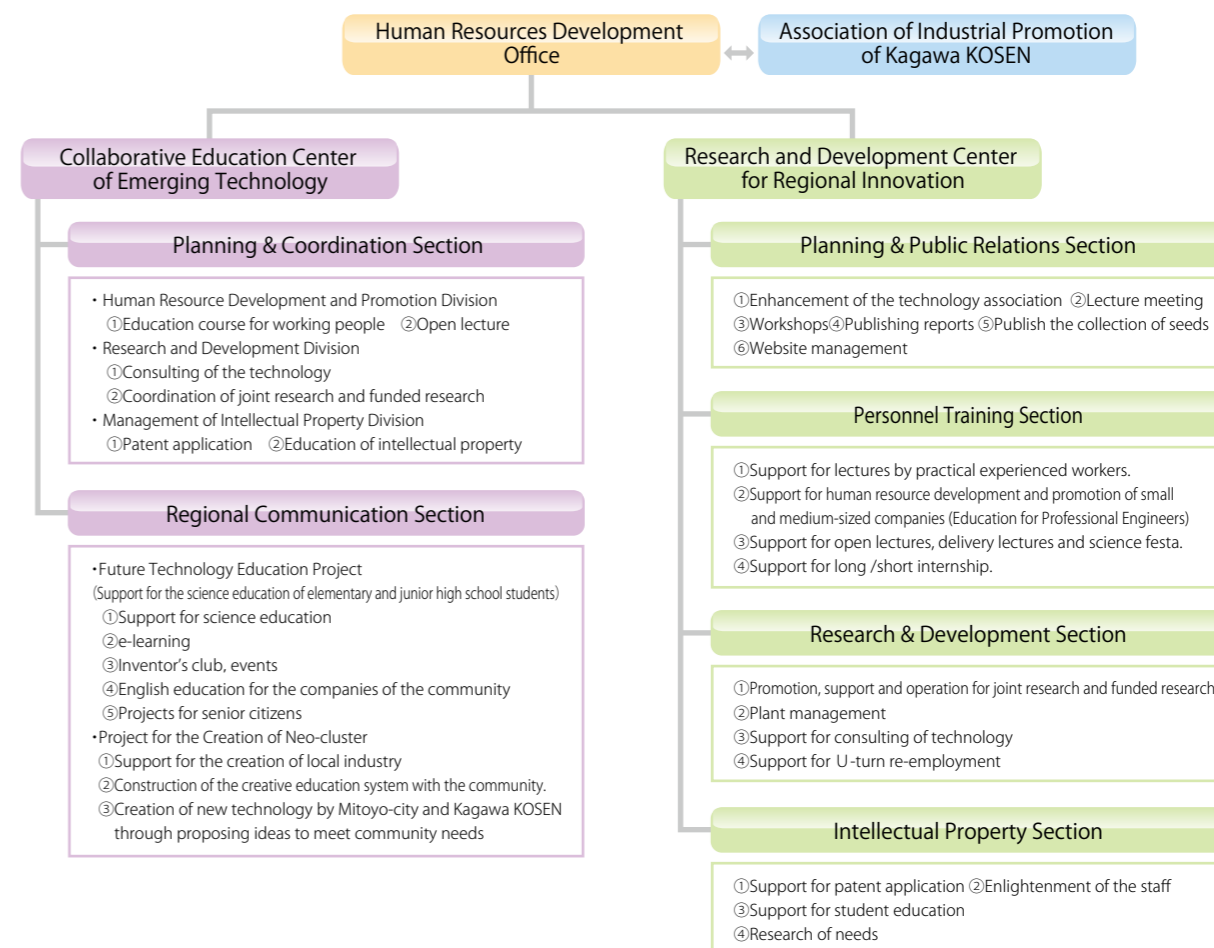
### ■ Number of International Students Entering Mid-course/Advanced course of NITKC in Each School Year

Country	Bangladesh	Brazil	Cambodia	China	Colombia	India	Indonesia	Kenya	Korea	Lao PDR	Malaysia	Mongolia	Philippines	Sri Lanka	Thailand	Uganda	Viet Nam	Pakistan	Total
2016											4	1			1				6
2015									(2)	1		1						1	5
2014							2				2								4
2013											1					1			2
2012											2				1				3
1985~2011	7	1	4	5	1	1	11	1	2	8	67	6	9	7	9	1	11		151
Total	7	1	4	5	1	1	13	1	4	9	76	8	9	7	11	2	11	1	171

( ): Advanced course

# Human Resources Development Office

## ◆ Organization Chart of Human Resources Development Office



## ◆ Activities of Academic-industrial Alliance

### ■ Association of Industrial Promotion of Kagawa KOSEN

Established on 28 August, 2009.

Purpose:

We utilize our knowledge, materials and human resources. We would like to develop the local industries and enhance the partnership with them, through the many operations such as exchanging technologies and information. We would like to contribute to the promotion of the education and research in Kagawa KOSEN

Description of business:

Promotion of technology development by the academic-industrial alliance. Development of local industries. Lecture meeting about technologies, lecture class, Workshop, Publish the information report, Consulting on technologies, Exchange information, Support for education of company workers, Promotion support projects of cooperative research, Internship, Recruiting fairs, Collaborative education, Promotion of education and research of Kagawa KOSEN etc.

### ■ Shikoku KOSEN Center for Innovative Technologies

Purpose:

Anan, Kagawa, Niihama, Yuge and Kouchi KOSENs utilize the potentials of the colleges and aspects of the Shikoku-area, and spread out the activities of the academic-industrial alliance to contribute to the stimulation and promotion of the local area.

Business outline:

1. Department of the creation of innovation  
Matching between the needs and the technology seeds of KOSENs in Shikoku-area. Consulting the technologies. Activities of academic-industrial alliance such as joint research.
2. Department of the Intellectual Property  
Management and education of Intellectual Property in coalition for KOSENs in Shikoku-area.
3. Department of coalition for KOSENs in Shikoku-area.  
Other activities to achieve the purpose of the center.

# Research

## ◆ Grants-in-Aid for Scientific Reserch

- Studies of fluoroscopic image processing and assessment for skin-dose reduction in x-ray diagnosis
- Digitalize the implicit knowledge of skilled baseball player by three demension motion analysis system and develop the coaching method based on analytical data
- An experimental study of corporate female human development designing long-term career education programs for female engineers
- Development of Electric Injection Molding Machine using High-speed Estimated Injection Pressure feedback for Super-thin Film Generation
- Aseismic reinforcement and erosion control method for soil structures using materials having high toughness
- Study on Measurement Method and Analysis Method of the Skill Work
- Solar Assist Battery
- Fabrication of mono-sized silicon sphere and controlling silicon crystallization by simultaneous imposition of electric and magnetic filed
- An educational tool to visualize biological effects after irradiation on a human body by using a spray-type controller
- Study on higher dimensional dual hyperovals and related functions on finite fields
- Development of RF design engineer training program
- A "Product Design" Theme Based Approach to Teaching English for Engineers
- Relaxation analysis of Electrode Material for Secondary Lithium ion Batteries
- Spontaneous symmetry breaking in nonperturbative string theory
- Construction of education environment utilizing tablet devices by applying Ad Hoc / sensor network technology
- Dosimetric study based on measurements of magnetic fields and contact currents from IH cookers
- Study on Effects of Non-Solubility Impurity Atoms for Solute Drag Creep and Hot Ductility
- Photoplethysmographic nail tip sensor for non-restraint and real-time monitoring system in home medical care
- Development of organic position-sensitive detectors for full color image sensor
- Serious 3D game for physics learning
- Development of the optimal parameter tuning method based on Gröbner basis for the model predictive controller
- A Study of Personality Estimation based on Emotion Judgment Algorithm in Customer Generated Media
- Quality attainment management system of concrete structures in revival road
- Development of a system to manage a handwritten report
- An Educational AR System for Visualizing Radiation Interactions with Human Tissue
- Experimental Study on Biodegradable Resin Concrete for Practical Use
- Number of Researches 26 , Total Funds 32,698,344Yen

## ◆ Commissioned Research

- Study of Strawberry Seeds-and-Saplings Cutting Instrument
- A Collaboration Project between Mitoyo City and The National Institute of Technology, Kagawa College
- Development of an Electrical Power Line Inspection Robot
- High accuracy of production and quality management techniques in open-field cultivation using the spectral reflectance spectrum and Machine Learning
- Number of Researches 4 , Total Funds 6,080,000Yen

## ◆ Cooperative Research with the Private Sector

- Study on Next Generation Imaging Technologies
- Motivational Homework Management System
- Promotion of production area of vegetables by Visualization of cultivation technology
- Study on effect of ELF magnetic fields on humans
- Research on utilization of Aji Stone waste as geomaterial for liquefaction countermeasures
- Study on Spining Process Simulation
- Study of Disaster Mitigate Technology for Overhead Traveling Crane
- Research of agricultural remote sensing by hyperspectral camera
- Studies on new imaging techniques of x-ray diagnoses including IVR procedures
- Development of photoresist removal technique using hydrogen radical
- Numerical simulation of cold-crucible
- Development of a Waste Treatment Plant for Scrap of Covered Wire
- Study on the high accuracy of the expected yield and quality management of open field vegetables by the weather and the soil model and the spectral reflectance spectrum data
- Improvement of the inspection system for the sewer pipes and development of a new inspection system
- Effect of the event " Niocho machizukuri "
- Research on slope stability methods
- Seminar on local transport plan for cross-regional vision
- A study of the next generation integrated energy conversion device with dissimilar materials for the education of the device physics
- A Self-Propelled Electrical Power Line Corrosion Detection Device
- Study on the Evaluation System of an effect of the taxi with AED
- A Study on Data Demodulation Method from Degraded Image Under the Influence of Channel for Image-Sensor-Based Visible Light Communication
- Development of Scintillation Detector for Education and the Assessment of Educational Effect
- High-Temperature Deformation Mechanism of Flame-Resistant Magnesium Alloy
- Mechanical assistive system for wheelchairs to enhance safety in sloping road
- Mechanical study of relation between soil and precast concrete
- Study on Application of an Optical Fiber Grating Device
- 6 another researches
- Number of Researches 32 , Total Funds 8,332,000Yen

## ◆ Other Competitive Funds and Grants

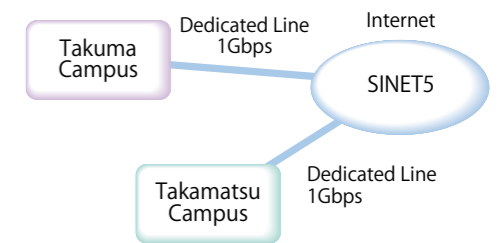
- Innovation of Sewage Treatment Technology for Agricultural Reuse in Arid Region
- Spread to the whole country field of low-cost sensor system with the information input and communication environment function and An empirical test by building a common database and information sharing system
- National college cooperation universe human resource development projects towards the ultra-small satellite realization
- Program to Promote Student Creation of Intellectual Properties
- Soils recovered from disaster debris - Characterization, standardization, and strategic utilization
- Development of environmentally friendly photoresist removal technique using hydrogen radical with trace amounts of oxygen
- Development of an Automatic Point Rating System for Line of Magnetic Force in Handwriting and the Assessment of Educational Effect
- Fabrication of Antibacterial Aluminum Using Silver Zeolite by Spark Plasma Sintering Method
- Risk assessment of safety and restoration of bridges in flood rivers in Kagawa prefecture
- A Study on the Atmospheric Chemical Components and the Deposition of Nutrients in the Coastal Area of Seto Inland Sea
- Inheritance of sailor's knowledge and experiences to future generations -Work and daily life in ocean service-
- Research on the development of non-destructive evaluation method of covercrete quality of concrete structures in port
- Study of Adapting of Friction Stir Welding for Extremely Thin Cold Rolled Steel Sheet
- Fabrication of Aluminum of Having Antibacterial, Deodorizer and Antivirus Function by Powder Metallurgy Method
- What can the Humanities and the Social Sciences bring to Engineering Ethics Education?
- Fabrication of mono-sized silicon sphere for spherical silicon solar cell-Prevention of droplet coalescence by imposition of electric filed
- Development of a portable fishway that creates migration environment for various aquatic animals
- 3 another researches
- Number of Researches 20 , Total Funds 30,117,560Yen

# Facilities

## ◆ Networking and Computing Service Center

### ■ Network Infrastructure

Each campus have a dedicated connection with 1Gbps to the Science Information NETwork (SINET).



Network Between Two Campuses and SINET5

### ■ Computing Service

#### ○ Takamatsu Campus

Automatically-recoverable computers are installed in the facilities and are used for education on computer literacy and academic research. 47 client computers for the first training room; 50 client computers for the second training room; 18 client computers for the third training room; and 54 client computers for the multimedia room.



Takamatsu Campus Second Training Room

#### ○ Takuma Campus

Automatically-recoverable computers are installed in two Seminar Rooms, Cyber Lab, Advanced Information Lab, and the Information Media Lab, and are used for education on computer literacy and academic research. All of the students can take advantage of the internet using e-mail and WWW.



Takuma Campus First Seminar Room

## ◆ Human Resources Development Office

This office consists of the Collaborative Education Center of Emerging Technology and the Cooperative Research & Development Center. Each center has many laboratories and a lot of equipment. These are used for students' experiment programs, the experiments for the graduation thesis of the associate degree, the cooperative research, and the commissioned research. The equipment is as follows: RF magnetron sputtering system; Plasma CVD; Vacuum evaporation system; Electron beam lithography system; X-ray diffraction system for thin-film crystalline analysis; Scanning electron microscope; Surface profiler; General-purpose FEM analyzer; X-ray fluorescence spectrometer; X-ray diffractometer; Scanning probe microscope; Ellipsometer; Absorption spectrophotometer; Scratching tester.



Scanning Electron Microscope



General-purpose FEM Analyzer



# Students

## Number of Students

### Department

Classification	Admission Capacity	Enrollment					Total
		1st	2nd	3rd	4th	5th	
Department of Mechanical Engineering	40	43(2)	43(1)	40(3)[2]	41(4)[1]	39(1)[2]	206(11)[5]
Department of Electrical and Computer Engineering	40	42(2)	44(7)	45(7)[1]	43(7)	34(5)[1]	208(28)[2]
Department of Electro-Mechanical Systems Engineering	40	42(3)	42(3)	42(2)	40(7)	46(3)[1]	212(18)[1]
Department of Civil Engineering	40	43(12)	44(9)	45(9)[2]	45(7)	34(6)	211(43)[2]
Department of Communication Network Engineering	40	41(10)	39(9)	39(4)[1]	36(7)[1]	47(7)[1]	202(37)[3]
Department of Electronic Systems Engineering	40	42(4)	44(6)	42(3)	42(6)	44(3)	214(22)
Department of Information Engineering	40	43(8)	41(7)	39(7)[1]	40(8)	36(10)	199(40)[1]
Department of Mechanical Engineering	-					1	1
<b>Total</b>	<b>280</b>	<b>296(41)</b>	<b>297(42)</b>	<b>292(35)[7]</b>	<b>287(46)[2]</b>	<b>281(35)[5]</b>	<b>1,453(199)[14]</b>

### Faculty of Advanced Engineering

Classification	Admission Capacity	Enrollment		Total
		1st	2nd	
Advanced Course in Industrial and Systems Engineering	24	26(3)	37(2)[1]	63(5)[1]
Advanced Course in Electronics, Information and Communication Engineering	18	18(1)	25(3)[1]	43(4)[1]
<b>Total</b>	<b>42</b>	<b>44(4)</b>	<b>62(5)[2]</b>	<b>106(9)[2]</b>

( ) Female,  
[ ] Overseas Students  
As of May. 1, 2016

## Clubs and Associations of People Sharing Common Interests

### Sports Clubs

Baseball Club	Tennis Club
Track & Field Club	Soccer Club
Table Tennis Club	Softball Tennis Club
Judo Club	Badminton Club
Kendo Club	Handball Club
Yacht Club	Karate Club
Volleyball Club	Trekking Club
Basketball Club	Shorinji-Kenpo Club
Swimming Club	

### Cultural Clubs

Photography Club	Chorus Club
Brass Band Club	Sado & Kado Club
English Club	Radiotelegraphy Club
Light Music Club	Rakugo Club
Computer Club	Shogi Club
Painting Club	Original Comics Club
Mechanical System Club	S.J.R.C Club
Science Club	Go & Shogi Club
Future Car Club	

### Societies

Drama Society	Literature Society
Calligraphy Society	Painting Society
Cheerleaders Society	Photograph Society
Microcomputer Society	SPOT Society
Miniature Model Society	Space Development Research Club

# Dormitories

## Seiun-ryo (Takamatsu Campus)

Takamatsu Campus has accommodations for students called Seiun-ryo, which consists of three buildings: South Dormitory, North Dormitory and West Dormitory. Male boarders stay at North and South Dormitory and female boarders use West Dormitory

- South Dormitory 4-story building 57 private rooms(9m<sup>2</sup>), 2 private rooms(13.5m<sup>2</sup>), 1 shared room with 2 beds etc(24m<sup>2</sup>)
- North Dormitory 3-story building 29 private rooms(11m<sup>2</sup>), 1 private rooms(15m<sup>2</sup>), 24 shared room with 2 beds etc(15m<sup>2</sup>)
- West Dormitory 3-story building 24 private rooms(10m<sup>2</sup>), 8 shared room with 2 beds etc(15m<sup>2</sup>)
- Common rooms a-study room, a seminar room to study Japanese, a drawing room, lounges with a kitchenette, laundry room, bath room and a cafeteria

### Number of Dormitory Students

School Year	1st	2nd	3rd	4th	5th	Faculty of Advanced Engineering	total
No. of Dorm studs	37(10)	43(2)	38(5)(5)	24(4)(1)	35(7)(4)	0	177(28)(10)

( ) : Number of Female Students within Total, < > Number of Overseas Students within Total As of May 1, 2016



## Shippo-ryo • Shiun-ryo (Takuma Campus)

Takuma Campus has two block sets of dormitory buildings, one of which is "Shippo-ryo" and the other is "Shiun-ryo". The dormitory accommodations consist of three buildings, which are called Second, Third and Fourth Block. Presently, male students stay at Second and Third Block in Shippo-ryo, while female students use Fourth Block in Shiun-ryo.

- Shippo-ryo (Takuma Campus) Two houses 4-story building 26 shared room with 2 beds etc(13.5m<sup>2</sup>)  
Three houses 5-story building 46 private rooms(9m<sup>2</sup>), 69 shared room with 2 beds etc(18m<sup>2</sup>)
- Shiun-ryo (Takuma Campus) Four houses 5-story building 12 private rooms(9m<sup>2</sup>), 38 shared room with 2 beds etc(18m<sup>2</sup>)
- Common rooms Study hall, a computer room, Lounge, lounges with a kitchenette, laundry room, bath room and a cafeteria

### Number of Dormitory Students

School Year	1st	2nd	3rd	4th	5th	Faculty of Advanced Engineering	total
No. of Dorm studs	46(12)	57(10)	47(7)(2)	45(7)(1)	36(3)(1)	12(1)	243(39)(5)

( ) : Number of Female Students within Total, < > Number of Overseas Students within Total As of May 1, 2016



# After Graduation

## Employment or Academic Situation

As of April. 1, 2016

### Takamatsu Campus

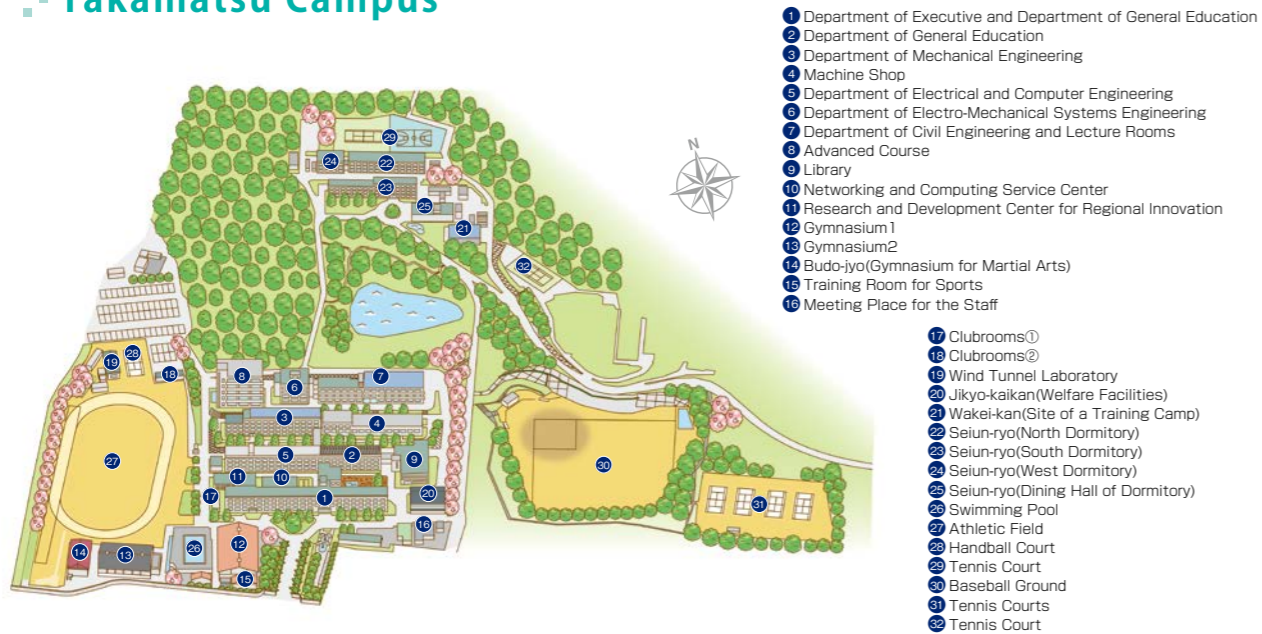
Department	Number of Graduates	Number of the Students who Further their Education	Number of Employed	Number of the Other	Job Offered Companies
Department of Mechanical Engineering	38	11	27	0	836
Department of Electrical and Computer Engineering	38	18	19	1	
Department of Electro-Mechanical Systems Engineering	28	13	14	1	
Department of Civil Engineering	30	11	19	0	
<b>Total</b>	<b>134</b>	<b>53</b>	<b>79</b>	<b>2</b>	
Course Advanced Course in Industrial and Systems Engineering	27	12	15	0	

### Takuma Campus

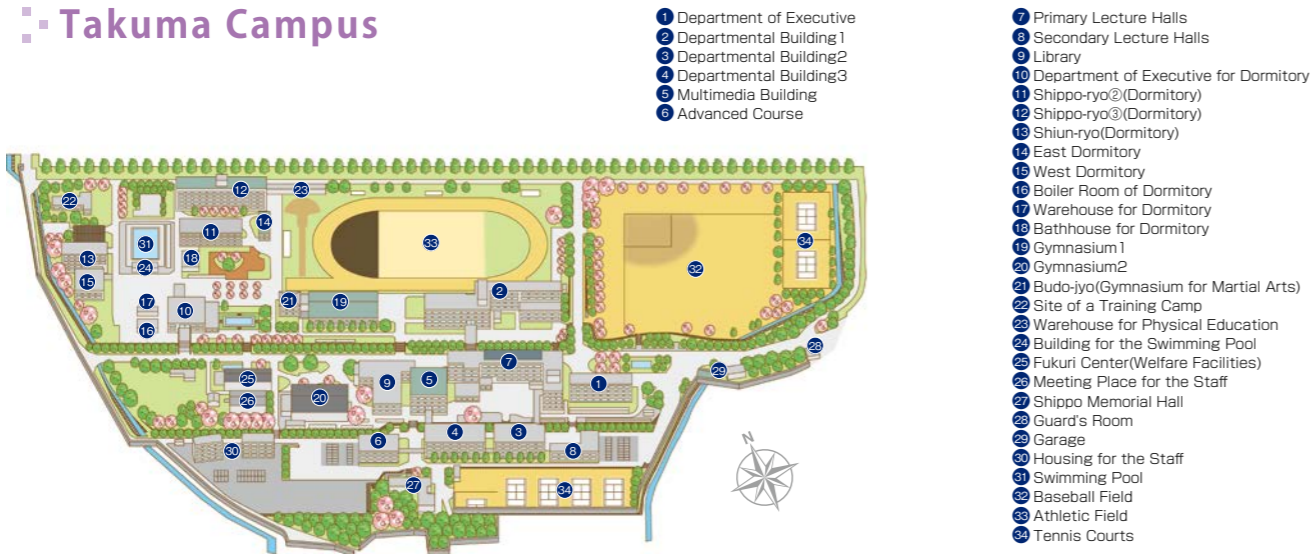
Department	Number of Graduates	Number of the Students who Further their Education	Number of Employed	Number of the Other	Job Offered Companies
Department of Communication Network Engineering	23	7	16	0	476
Department of Electronic Systems Engineering	40	16	24	0	
Department of Information Engineering	40	21	18	1	
Department of Control Engineering	1	1	0	0	
<b>Total</b>	<b>104</b>	<b>45</b>	<b>58</b>	<b>1</b>	
Course Advanced Course in Electronics, Information and Communication Engineering	14	5	9	0	

# Campus Map

## Takamatsu Campus



## Takuma Campus



# Accounting

## Revenue and Expenditure (2015)

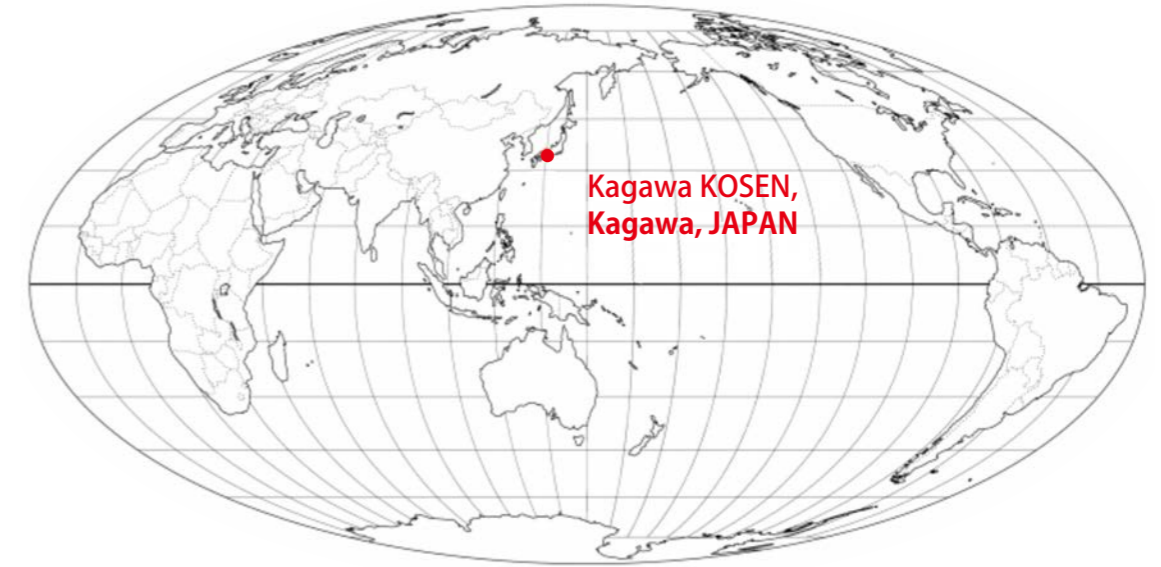
### Revenue (a monetary unit : 1,000yen)

Grant for working Expenditure	74,734
Facilities Improvement Expenses	43,686
Self-Revenue	
Tuition and Entrance Examination Fee	378,074
Miscellaneous Revenue	11,434
Industry-University Cooperation Research Revenue and Donation	36,485
Other Subsidy	14,803
Total	559,216

### Expenditure (a monetary unit : 1,000yen)

Educational Research Expenses	337,361
General Administrative Expenses	138,089
Facilities Improvement Expenses	43,686
Industry-University Cooperation Research and Donation Project Expenses	30,289
Other Subsidy	14,803
Total	564,228

# Access from International Airports to Kagawa KOSEN



1 Narita International Airport(Tokyo) ⇒ (Narita Express) ⇒ JR Tokyo Station ⇒ (Tokaido Shinkansen) ⇒ JR Okayama Station ⇒ (Marine Liner) ⇒ JR Takamatsu Station

2 Tokyo International Airport(Tokyo) ⇒ (All Nippon Airways, Japan Airlines) ⇒ Takamatsu Airport ⇒ (Limousine Bus) ⇒ JR Takamatsu Station

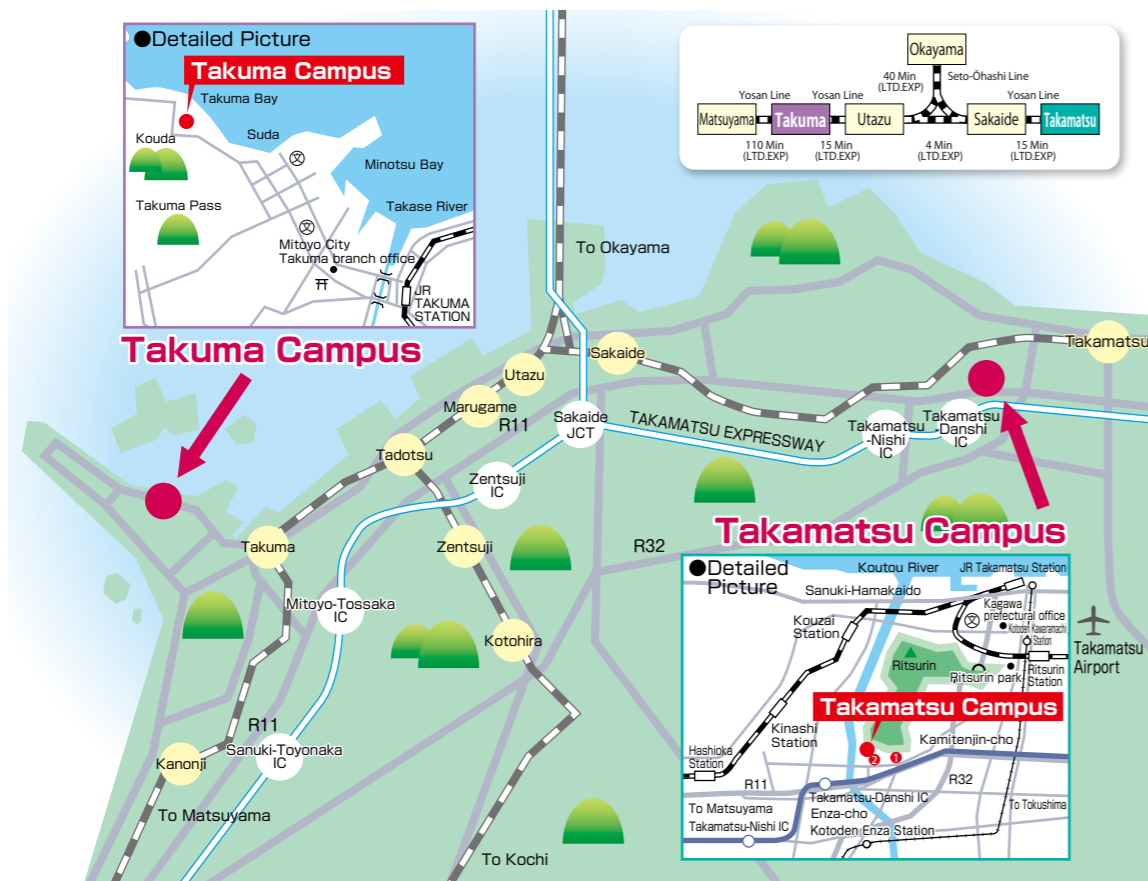
3 Kansai International Airport(Osaka) ⇒ (Limousine Bus) ⇒ JR Takamatsu Station

4 Kansai International Airport(Osaka) ⇒ (Haruka Express) ⇒ JR Shin-Osaka Station ⇒ (Sanyo Shinkansen) ⇒ JR Okayama Station ⇒ (Marine Liner) ⇒ JR Takamatsu Station

Direct access from Takamatsu Airport or JR Takamatsu Station to NITKC is only 20 minutes by car.



# Access Map



## Takuma Campus

- **From JR Takuma Station (Yosan Line)**  
20 minutes by car  
Mitoyo City Community Bus for Nabuto on Takuma line /for Ohama on Takuma-Mino line  
→ 1 minute walk from Kagawa KOSEN mae bus stop
- **From Takamatsu Expressway IC**  
20 minutes by car from Mitoyo-Tossaka IC  
30 minutes by car from Sanuki-Toyonaka IC
- **From Takamatsu Airport**  
60 minutes by car

**Address**  
551 Kohda, Takuma-cho, Mitoyo, Kagawa  
769-1192 Japan  
+81-875-83-8506

## Takamatsu Campus

- **From JR Takamatsu Station**  
30 minutes by car  
Kotoden Bus(No.5 bus stop) for Ritsurin Garden, Mimaya-Prefecture Swimming Pool → 1 minutes walk from Kagawa Kosen mae bus stop②
- **From Takamatsu Expressway IC**  
25 minutes by car  
Kotoden Bus(No.5 bus stop) for Yusa-Iwasaki, Yusa-Ikenishi or Ikenishi-Konanrakuyu→ 10 minutes walk from Koyama bus stop①
- **From Takamatsu Airport**  
7 minutes by car from Takamatsu-Nishi IC  
5 minutes by car from Takamatsu-Danshi IC
- **From Takamatsu Airport**  
20 minutes by car

**Address**  
355 Chokushi-cho, Takamatsu, Kagawa  
761-8058 Japan  
+81-87-869-3811