

2014 College Bulletin, Kagawa National College of Technology [Kagawa Kosen]



2014 College Bulletin

Institute of National Colleges of Technology, Japan
Kagawa National College of Technology
[Kagawa Kosen]



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[Kagawa Kosen]

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

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<p><b>Mission</b></p>
<p><i>To develop highly qualified engineers that have a rich sense of humanity and creativity.</i></p>
<p><i>To contribute to the wealth and advancement of our local community as a driving force of intellectual and technological progress.</i></p>
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Message from the President

Kagawa National College of Technology 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 18,000 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 of Kagawa National College of Technology

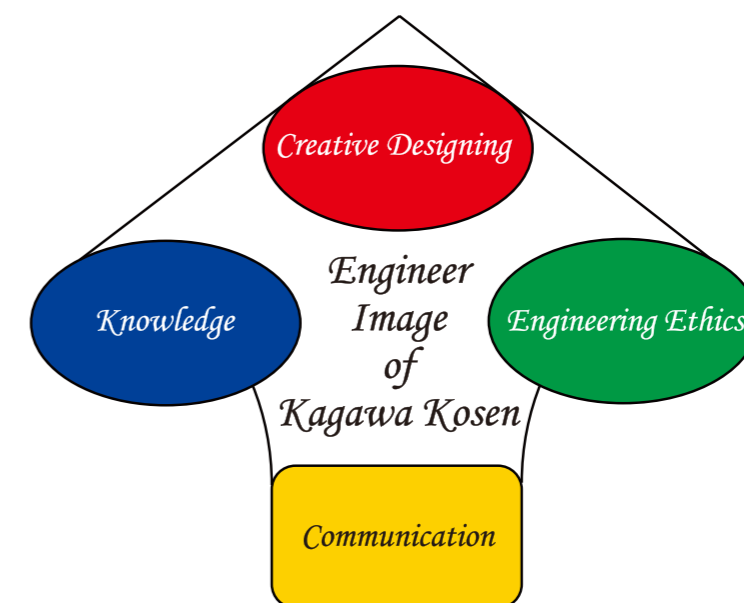
Mission of Kagawa National College of Technology (Kagawa Kosen)

- 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.

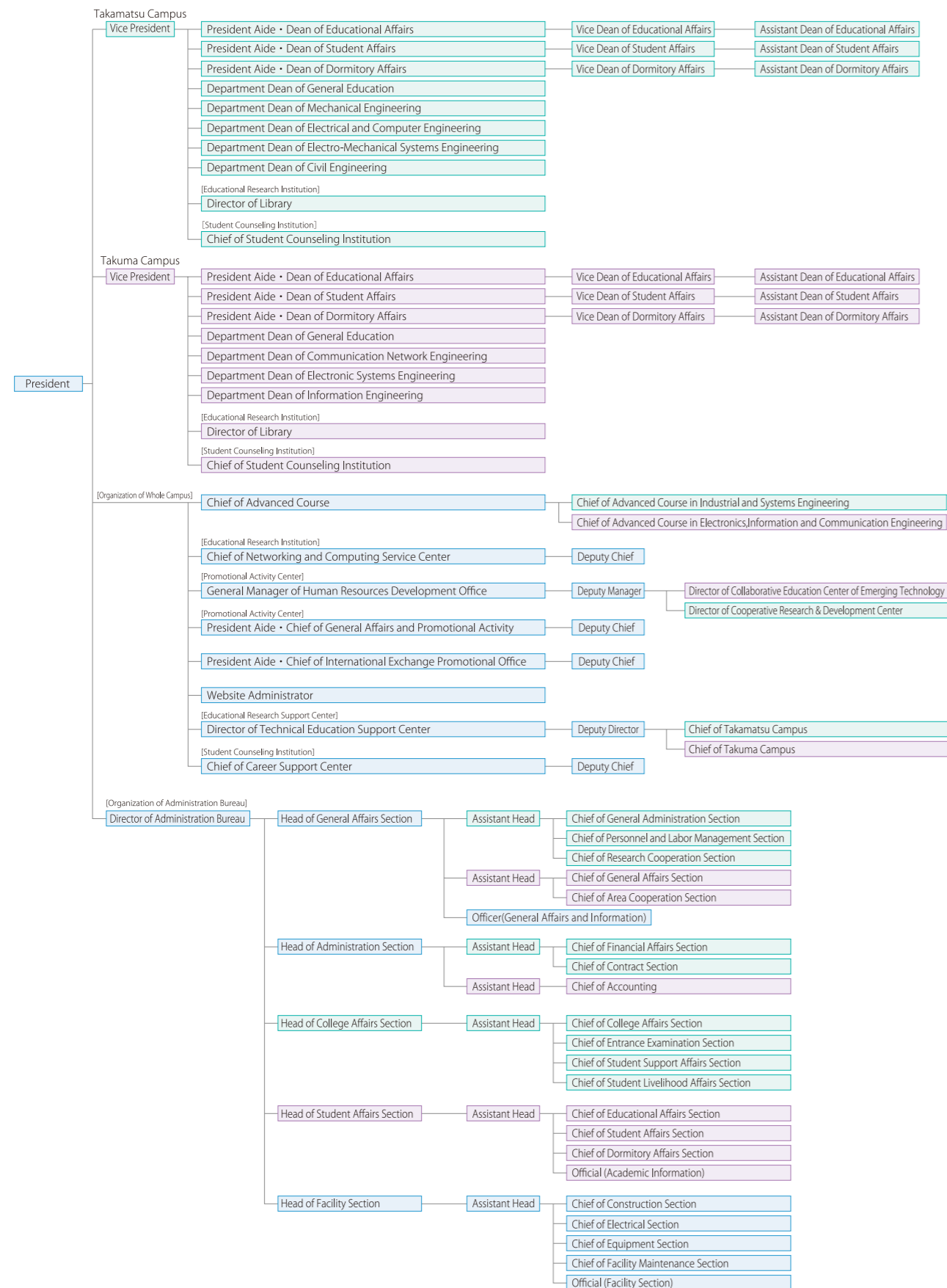
In October, 2009, Takamatsu Kosen and Takuma Kosen were incorporated and reorganized as Kagawa National College of Technology (Kagawa Kosen). Two divisions including seven departments were set up: Industrial and Systems Division (Takamatsu Campus) and Electronics, Information and Communications Division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

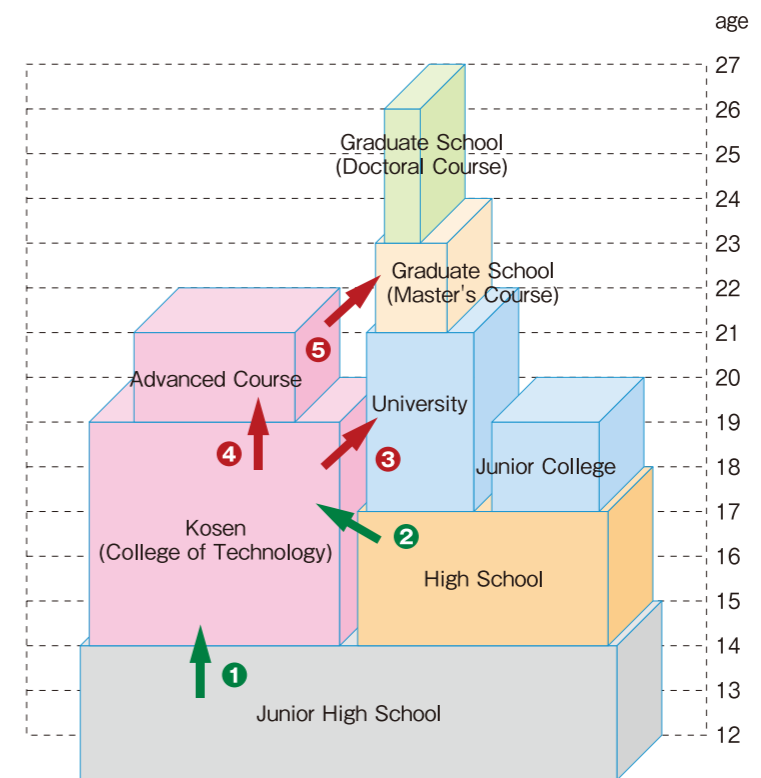
In April, 2014, Dr. Takeshi Yao was appointed as the second president of Kagawa Kosen.

Organization

◇ Chart of Organization



School System of Japan



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

■ Kosen(College of Technology)

- Kosens(five-year schools to teach engineering to junior high school graduates)were established in 1961, in response to a strong demand from the industrial sector for fostering engineers to sustain Japanese economic growth.
- A two-year advanced course system was introduced in 1991.
- In 2004, the Institute of National Colleges of Technology was inaugurated to manage 55 national Kosens throughout Japan.
- Approximately 300,000 students have graduated so far, contributing actively not only to the industrial world but also to the academic sector, as engineers, researchers, managers and so on.

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.	HASEGAWA, Takashi	Japanese Literature of War
	KONO, Michihiro	Criminal Law & Procedure Constitution
	IDEBUCHI, Mikiro	Methodologies of Teaching English
	TANIGUCHI, Hiroaki	Algebraic Combinatorics
	SAKAMOTO, Tomotsugu	History of Ancient Chinese Thoughts
	OKANO, Hiroshi	Inorganic Materials Chemistry Thin Film Engineering
	TAGUCHI, Jun	History of Educational Thought
Associate Prof.	SAWADA, Isao	Statistical Mechanics Condensed Matter Theory
	TAKAHASHI, Hiroaki	Topology Mathematical Physics
	ITO, Kikuyo	Cross-language Speech Perception
	NAKASE, Mikio	Sports Methodology Coach Methodology
	HASHIMOTO, Norifumi	Synthetic Organic Chemistry Catalytic Chemistry
	YOSHIZAWA, Kousei	Theory of Sports Training
	NAGAHARA, Shinobu	Modern Literature
Assistant Prof.	YODA, Jun	European History
	SATO, Fumitoshi	Algebraic Geometry
	ENDO, Tomoki	Computational Physics, Theoretical Nuclear Physics
	ICHIKAWA, Ken	English Education



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.	TORIGOE, Hidetomo	Teaching Methodologies Corpus Linguistics
	MINAMI, Takayuki	Differential Equation Hamiltonian System
	UCHIDA, Yuriko	Japanese History Career Education Women's Studies
	TOJO, Toshiki	Japanese Literature
Associate Prof.	HATA, Nobuoki	British Literature
	ARIMA, Hirotohi	Methodology of Coaching
	FUJIHARA, Nobuhiro	Japanese Literature
	HASHIMOTO, Ryuta	Number Theory Continued Fraction
	HIGASHIDA, Yoji	Theoretical Physics
	UEHARA, Shigenori	Geometric Topology General Topology
	MORI, Kazunori	English Teaching, CALL
Assistant Prof.	MIZUNO, Chizuko	English Education
	YOKOYAMA, Manabu	Methodology of Sports Training Health Education
	NAKAMURA, Tokuhiko	Atmospheric Chemistry
	HASEBE, Kazuki	Theoretical Physics
	YAMAOKA, Kenjiro	Political Theory Refugee Studies
HOSHINO, Ayumu	Mathematical Physics, Representation Theory	

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
Associate Prof.	FUKUI, Satoshi	Fatigue of Materials Design Engineering
	YAMASAKI, Yojiro	Robotics Motion Control
	YOSHINAGA, Shinichi	Control Engineering
Assistant Prof.	JODAI, Yoshifumi	Fluids Engineering
	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 I	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	Special Lectures on Engineering III	1		
Mechanical Experiment I	3	Job Training	1		
Mechanical Experiment II	3	Introduction to Engineering Frontier	1		
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.	MORIMOTO, Toshifumi	Radiwave Engineering
	HARAZONO, Masahiro	Acoustical Information Engineering Digital Signal Processing
	HONDA, Michitaka	Imaging Technology, Medical Radiation Physics and Technology
Associate Prof.	SHIKAMA, Tomokazu	Semiconductor Physics Thin Films Engineering
	SHIGETA, Kazuhiro	Information and Communication Engineering Educational Technology
	TSUJI, Masatoshi	Electronic Circuit Microwave Engineering
	URUSHIHARA, Shiro	Motion Control
Assistant Prof.	TARAO, Hiroo	Electromagnetic Compatibility Bioelectromagnetics
	MURAKAMI, Yukikazu	Educational Technology
Research Associate	KAKIMOTO, Takeshi	Software Development Management
	HINAMOTO, Yoichi	Adaptive Signal Processing
	YAMAMOTO, Masashi	Material Science



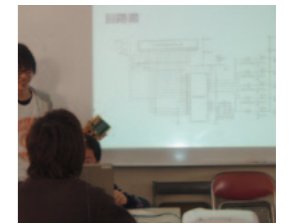
Lecture



Experiment of Embedded System



Remote Teaching over the Internet



Presentation of Circuit Design

◆ 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		Electric 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 Practice	1		
Practice of Elementary Creation II	2	Special Lecture	1		
Experiments of Electronics and Computer Science I	3	Introduction to Engineering Frontier	1		
Experiments of Electronics and Computer Science II	3				
Applied Experiments on Electronics and Computer Science	3				
Thesis Research	6				
Special Practice	1				
Design of Circuit	2				

◆ Main Experiment Facilities

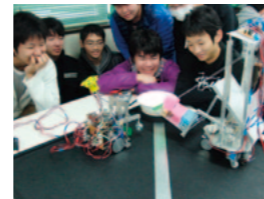
Room	Main Equipment
Measurement Control Lab.	SCR Inverter, Electric Machine Training System, He-Ne Laser, Optical Power
Electronics and Information Lab.	Curve-tracer, Oscilloscope, Logic Analyzer, Microwave Measuring System, Print Board Fabrication System, Optical Communication/Optical Fiber Communication 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

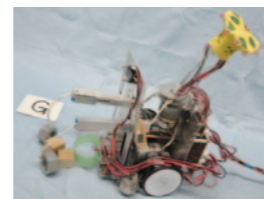
The department has a curriculum to educate students standing on mechatronics which is a combined engineering field that consists of mechanics, electronics, control engineering and computer science. The students are expected to have the role of not only simple manufacturing but also design & development, 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
	KURIHARA, Yoshitake	Signal Processing
Associate Prof.	TOKUNAGA, Hidekazu	Computational Learning Theory Web Mining
	YURA, Satoshi	Control Engineering Motion Control
	SOUMA, Takeshi	Energy Engineering Energy Materials
	SHIMASAKI, Shinichi	Electromagnetic Processing of Materials
	HENMI, Tomohiro	Control Engineering
Assistant Prof.	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 Lathe



Observing a Sinusoidal Signal

Curriculum

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

Main Experiment Facilities

Room	Main Equipment
Engineer Material Lab.	Optical Microscope, Electric Furnace, Video Microscope, Vickers Brinell and Rockwell Hardness Tester
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
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
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.	DOI, Masanobu	Geotechnical Engineering Rock Mechanics
	KOTAKE, Nozomu	Geotechnical Engineering Geoenvironmental Engineering
	MIZUKOSHI, Mutsumi	Materials Engineering Concrete Engineering
Associate Prof.	TSURUMOTO, Yoshihiro	Hydromechanics Engineering Coastal Engineering
	MUKAITANI, Mitsuhiko	Geotechnical Engineering Irrigation Pond Science
	MIYAZAKI, Kosuke	Infrastructure Planning Transportation Planning
	TAGAWA, Tadashi	Sanitary Engineering Environmental Engineering
	HAYASHI, Kazuhiko	Concrete Engineering Maintenance Engineering
Research Associate	IMAOKA, Yoshiko	Urban Planning Welfare Engineering
	TAKAHASHI, Naoki	Hydraulic Engineering Ecological Engineering
	MATSUBARA, Saburo	Surveying Materials Engineering



Experiment on a Concrete Beam Subjected to Bending



Exercise Surveying with Computer

Curriculum

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



Analysis of Methane-energy Recovery from Organic Waste



Fundamental Information Processing

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.	Ion chromatography, Gas chromatograph-mass spectrometer, CHN analyzer, Autoclaves, Centrifuge, Ultra pure water system, Acid rain collect, Cyclic Triaxial test apparatus, Constant temperature ovens
Computer room	Personal computer(46sets), page printers(2set), Local area network, Video recorder system, Teaching material presentation system
Equipment room	Total station, Digital type theodolites(4set), Automatic levels, Electro-optical distance meters(4set), Plane table, Planimeters, Stereoscope
Drafting room	Drafting table angle boards(45set), Plate girder model, Truss bridge model, Various drafting instruments

Electronics, Information and Communication Engineering Division (Takuma Campus)

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
Associate Prof.	ISSHIKI, Hiromi	Biomedical Engineering
	YOKOUCHI, Takashi	Applied Technology of Optical Fiber
	MANABE, Katsuya	Electromagnetic Theory Microwave Theory and Techniques
	TAKAJO, Hideyuki	Educational Technology Ubiquitous Computing
Assistant Prof.	SHOHOON, Toshiyuki	Coding Theory Communication Engineering
	ONO, Akira	Telecommunication Electronic Circuit
	KUMEKAWA, Kazuya	Computer Networks
Research Associate	SHIRAISHI, Keiichi	Computer Algebra e-Learning
	KUSAMA, Yusuke	Microwave Engineering
Research Associate	KAWAKUBO, Takashi	Field Emission Surface Physics
	ARAI, Shintaro	Nonlinear Circuits and Systems Intelligent Transport Systems



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
Analog Circuit 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	
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	1	
Introduction to Engineering Frontier	1	
Elective	Information Theory	2
	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	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.	TASHIMA, Shinichi	Control Engineering
	MURAKAMI, Junichi	Instrument Engineering
	MISAKI, Yukinori	Robot Engineering
	NAGAOKA, Shiro	Integrated Circuits
Associate Prof.	YAGI, Masakazu	Solid State Physics
	KINOSHITA, Toshiharu	Robot Engineering
	MIKAWA, Michio	Solid State Physics
	JOHNSTON, Robert Weston	Computer Science
Assistant Prof.	TSUKIMOTO, Isao	Electronic Circuits
	TENZOU, Hideki	Energy Engineering
	MORIMUNE, Taichiro	Solid State Physics
Research Associate	FUJII, Hiroyuki	Robot Engineering



Robot Manufacture Experiment using MINDSTORMS (in 1st-3rd Grade)



Circuit Manufacture Experiment (in 4th Grade)



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



Graduation Work with Region Cooperation (in 5th Grade)

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
	Electric Circuits II	2
	Electromagnetics I	2
	Electromagnetics II	2
	Electronics	2
	Electronic Circuits I	2
	Semiconductor Electronics I	2
	Digital Circuits I	2
	Digital Circuits II	2
	Information Processing I	2
	Seminar in Electronic Systems Engineering I	4
	Seminar in Electronic Systems Engineering II	1
	Creative Experiments and Practices	4
	Experiments and Practices	2
	Experiments in Information Engineering	4
Experiments in Electronic Engineering I	4	
Experiments in Electronic Engineering II	4	
Graduation Research	12	
Solidstate Physics	2	
Network Theory	2	
Electronic Circuits II	2	
Semiconductor Electronics II	2	
Electronic Measurements	2	
Physics of Semiconductors	2	
Electronic Device Engineering	2	
Optical Electronics	2	
Electrical and Electronic Materials	2	
Control Engineering I	2	
Control Engineering II	2	
Sequence Control	2	
Robot Engineering I	2	
Robot Engineering II	2	
Sensor Electronics	2	
Information System I	2	
Communication System A	2	
Information Processing II	2	
Data Communications	2	
Image Engineering	2	
Operations Research	2	
Mechanical Dynamics	2	
System Engineering	2	
Environment and Human Society	1	
Factory Training	1	
Special Lectures	1	
Introduction to Engineering Frontier	1	
Elective	Information Theory	2
	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	1	
Introduction to Engineering Frontier	1	

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(=1m, 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
	SAWARAME, Masashi	Information Systems
Associate Prof.	KAWATA, Jun	Plasma Surface Interaction
	KANAZAWA, Keizo	Image Processing
	KONDOH, Yuji	Computer Algebra
	OKUYAMA, Shingo	Algebraic Topology
Assistant Prof.	KAWAZOME, Hayato	Plasma Spectroscopy
	SASAYAMA, Manabu	Information Retrieval Machine Translation
Research Associate	SUZUKI, Hiroshi	Cooperative Conveyance Control
	OKUMURA, Noriyuki	Natural Language Processing Intelligent Information Processing



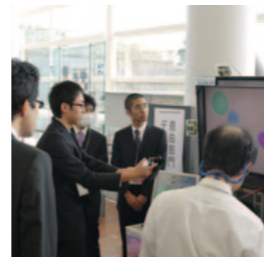
Simulator of Microcomputer



Software-Driven Radio-Control Car



Network Integration



Demonstration in Programming Contest

Curriculum

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

Main Experiment Facilities

Room	Main Equipment
Control Circuit Lab.	3D Input/Output Device(3D Scanner, 3D Milling machine) 3D CAD/CAM software
Electric 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
	Associate Prof.	SHIGETA, Kazuhiro	Department of Electrical and Computer Engineering
		HENMI, Tomohiro	Department of Electro-Mechanical Systems Engineering
		MUKAITANI, Mitsuhiro	Department of Civil Engineering
Electronics, Information and Communication Engineering	Prof.	INOUE, Tadaaki	Department of Communication Network Engineering
		MURAKAMI, Junichi	Department of Electronic Systems Engineering
		MATSUSHITA, Hiroaki	Department of Information Engineering



Advanced Course(Takamatsu)



Advanced Course(Takuma)

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

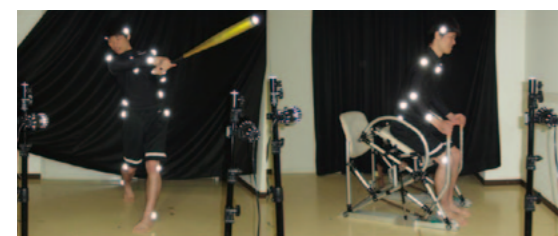
This course is for future mechatronics engineers with well-founded skills who contribute to the human happiness and welfare.

Civil Engineering Course

This course is for future civil engineers with knowledge of anti-seismic, disaster prevention recycling, and environmental preservation techniques.

Curriculum

Classification	Subject	Credits	
Liberal Arts	Compulsory	Management Theory	2
		TOEIC Preparation	2
	Elective	Jurisprudence	2
		Classical Literature	2
Engineering Basic	Compulsory	Engineer Ethics	2
		Topics in Mathematics I	2
		Modern Physics	2
	Elective	Intellectual Property Rights	2
		English for Technical Purpose	2
		Topics in Mathematics II	2
		Physical Chemistry	2
		Analytic 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
		Thesis Research	16
		Seminar	4
	Elective	Special Lectures	2
		Internship I	1
		Internship II	2
		Internship III	4
		Internship IV	4
		Internship V	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	
	Elective	Electromagnetic Compatibility	2
		Modern Control Theory	2
		Energy Conversion Engineering	2
		Project Management Theory	2
Solid State Electronics		2	
Eng. Subjects of EC Course	Elective	Integrated Circuits	2
		Optical Electronics	2
		Semiconductor Physics	2
		Digital Technologies	2
		Telecommunication System Engineering	2
	Information and Communication Engineering	2	
	Microwave Engineering	2	
	Digital Signal Processing	2	
	Acoustical Information Engineering	2	
	Image Processing Engineering	2	
Eng. Subjects of MS Course	Elective	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
		Structural Design I in Civil Engineering	2
Structural Design II in Civil Engineering	2		
Eng. Subjects of CV Course	Elective	Prevention of Natural Disasters I	2
		Environmental Disaster Prevention Engineering II	2
		Advanced Hydromechanics	2
		Environmental Surveying	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
Introduction to Civil Engineering	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
		Topics Applied Mathematics	2
	Elective	Intellectual Property	2
		English for Engineers	2
		Engineering Mathematics	2

Classification	Subject	Credits	
Common Special Subjects	Compulsory	Thesis Research	10
		Experiments and Exercise I	4
		Experiments and Exercise II	6
		Quantum Mechanics	2
	Elective	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		
Eng. Subjects of CN	Elective	Internship I	1
		Internship II	2
		Internship III	4
		Internship IV	6
Eng. Subjects of ES	Elective	Communication Engineering	2
		Radio and Light Wave Engineering	2
		Optical Communications	2
Eng. Subjects of IT	Elective	Specialized Radio Engineering	2
		Applied Solid State Physics	2
Eng. Subjects of ES	Elective	Integrated Electronics	2
		Digital Control Engineering	2
Eng. Subjects of IT	Elective	Object Oriented Programming	2
		Applied Network Programming	2
Eng. Subjects of IT	Elective	Database Design	2

CN...Communication Network

ES...Electronic Systems

IT...Information



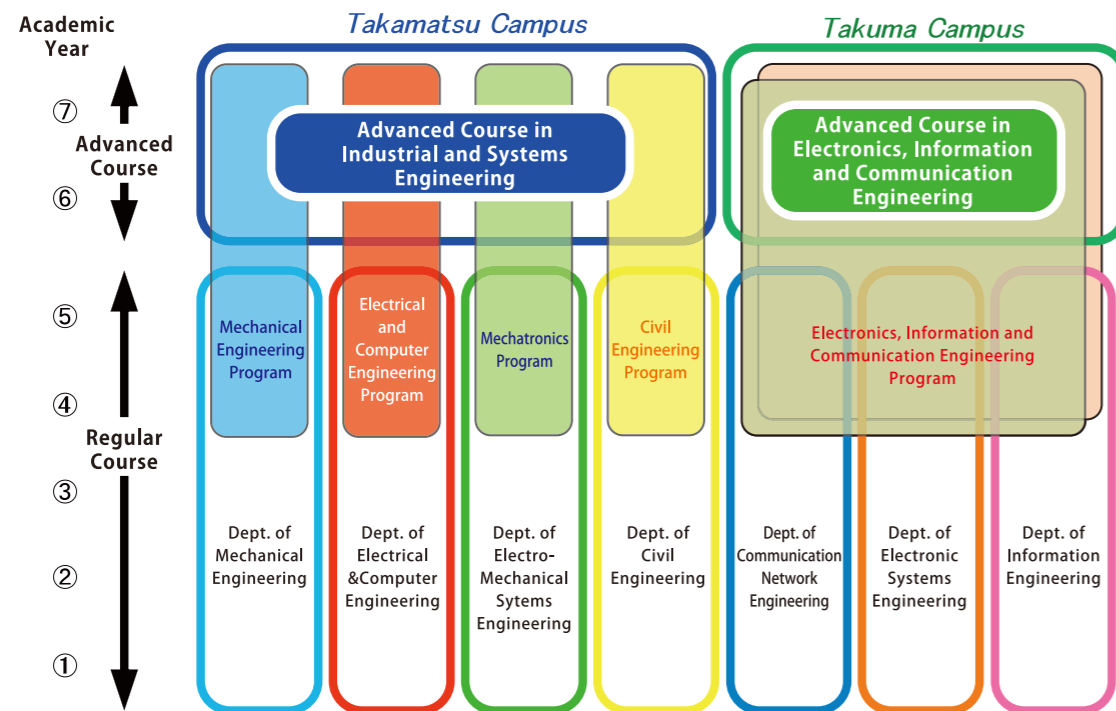
Collaborative Research Experiments



Patents Awarded to Students

Engineering Education Programs

The Advanced Course in Kagawa Kosen is based on five education programs, which consist of Mechanical Engineering, Electrical and Computer Engineering, Mechatronics, Civil Engineering, Electronics, Information and Communication Engineering¹⁾ programs to improve the qualification and quality of engineering education. Programs are designed as the steps for students to get the qualification of Professional Engineer (P.E.). Those who have finished the advanced course and education program and passed the primary examination of P.E. are qualified to become engineers that work on domestic or international stages.



Evaluation and Accreditation

The education programs of Takamatsu Campus and Takuma Campus in Kagawa Kosen have been accredited as appropriate education systems and programs for college of technology by NIAD-UE²⁾ (National Institution for Academic Degrees and University Evaluation) since 2007. And four programs of Takamatsu Campus have been accredited by JABEE³⁾(Japan Accreditation Board for Engineering Education) since 2005 and 2006.

- 1) Electronics, Information and Communications Engineering program has two courses, and one is an educational program of engineers who follow the standards of JABEE, and other one is the course in which students can be intent on the achievement of technology and expertise.
- 2) The organization to accredit and evaluate the university, junior college and college of technology education programs and to assure the quality of education and research as Japanese higher education system.
- 3) An accreditation system as third party that can evaluate whether engineering education programs conducted by Japanese institutes of higher education such as university reach the expected levels.

International Affairs

Academic Exchange Agreements 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

Organization of International Symposiums/Seminar(2011-2013)

- ◇“International Symposium on Geo-Environment Engineering (GEE) 2011,” KNCT, Takamatsu, Kagawa, Japan, May 2011.
- ◇“International Joint Workshop on Technology in Education and Educational Research,” KNCT, Mitoyo, Kagawa, Japan, Jul. 2011.
- ◇“Malaysia-Japan Civil and Environmental Engineering Symposium 2013,” UiTM, Shah Alam, Malaysia, Mar. 2013.
- ◇“International Postgraduate Seminar 2013,” UiTM FCE, Shah Alam, Malaysia, Jun. 2013.
- ◇“International Conference on Nanoscience, Nanotechnology and Nanoengineering 2014,” UiTM, Shah Alam, Malaysia, Mar. 2014.

International Exchange and Academic Activities by Faculty and Students

- ◇ Exhibition by KNCT students at the Korea Electronics Show with DMU, Oct. 2010 and Oct. 2012.
- ◇ International internship at local offices of Japanese firms; in Thailand (2009), Philippines (2010, 2012), China (2011 and 2013), Indonesia (2012), Hong Kong (2013), Singapore (2013), Taiwan(2013), and U.S.(2013)
- ◇“Engineering Class in English” by Visiting Professors from overseas; at Dept. of Civil Eng. (Oct. 2010, Jun. 2013 and Oct. 2013), Dept. of Mechanical Eng. (Jan. 2011), Dept. of Electrical and Computer Eng. (Sep. 2011), Dept. of Communication and Network Eng. (Jan. 2013), Dept. of Civil Eng.(Jun. 2013), Dept. of Civil Eng.(Oct. 2013),and all Departments(Oct. 2013).
- ◇ Student exchange from UiTM to Advances Course of KNCT, Jul. to Oct. 2011.
- ◇ Research exchange with CSU and UiTM, Mar. 2011, Mar. 2012, Mar. 2013, and Mar. 2014.

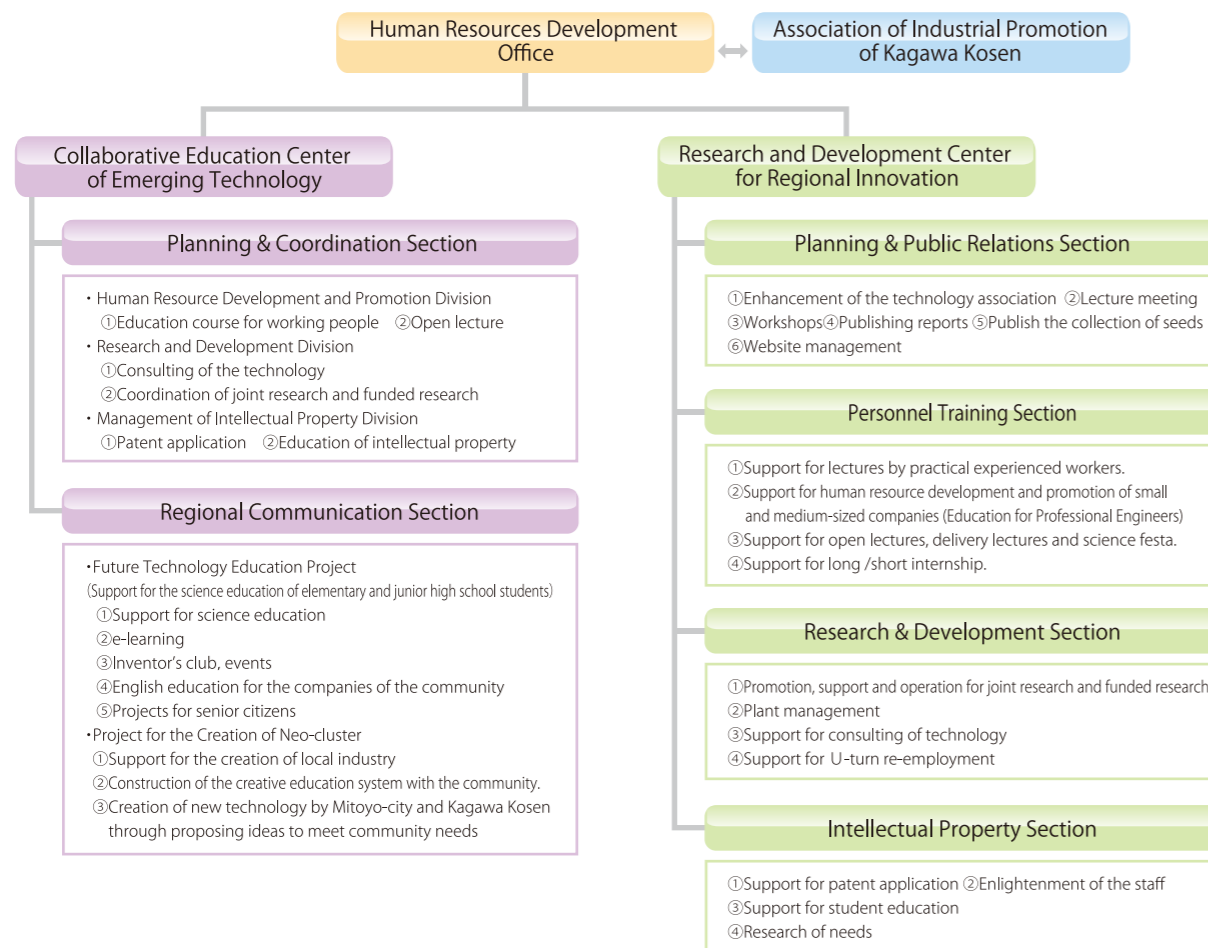
International Students at KNCT

Number of International Students Entering Mid-course of KNCT in Each School Year

Country / School Year	Bangladesh	Brazil	Cambodia	China	Colombia	India	Indonesia	Kenya	Korea	Lao PDR	Malaysia	Mongolia	Philippines	Sri Lanka	Thailand	Uganda	Viet Nam	Total
2014							2				2							4
2013											1					1		2
2012											2				1			3
2011			1				1				3							5
2010										2	2	1						5
1985~2009	7	1	3	5	1	1	10	1	2	6	62	5	9	7	9	1	11	141
Total	7	1	4	5	1	1	13	1	2	8	72	6	9	7	10	2	11	160

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, 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 NCTs 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 NCTs in Shikoku-area.
3. Department of coalition for NCTs in Shikoku-area.
Other activities to achieve the purpose of the center.

Research

◇ Grants-in-Aid for Scientific Research

The development of video materials and iPad applications to teach English for engineering students
Study on functions on finite fields and finite geometries
Separation control of flow over plate trailing edge with DBDPA
Study on development of universal decoding algorithm for linear codes
Study on the relationship between Social Exclusion and Public Transport Service
Development of CZTS Solar Cells Using Organic Buffer Layers
Abelian quotient vs Non-Abelian quotient
Research about supersymmetric non-commutative geometry in higher dimensions and topological quantum many-body states
Study on Visualization of Electromagnetic Waves and Its Real Time Three Dimensional Display
The development of learning simulator of classic Japanese literature
Development of body-conducted speech microphone using optical fiber bragg grating for MRI room where is high noisy sound and magnetic field
LED Visible Light Communication System Using Portable Illumination Apparatus for Lifesaving in Disaster Situation
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 dimension 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
Development of methods for quality evaluation of actual concrete structures by surface water absorption test
Washout mechanisms of bridges by great tsunami and validation methodology of countermeasures
Research on functional differentiation and quality guarantee in higher education through career and vocational education
Study of Photovoltaic Device with Nano-island oxides
Development of Evaluation System for Kendo Practice Using Motion Sensor
Number of Researches 25, Total Funds 32,117,000Yen

◇ Commissioned Research

Innovation of Refractory Soluble Cutting Fluid Wastewater Treatment by Novel Low-cost Anaerobic DHS Reactor
Collaboration project between Mitoyo-city and Kagawa National College of Technology
Development of the living support system using IC card interface
High Strain Rate Superplasticity at Al-Mg Alloy for Automotive Parts Combined with Grain Boundary Sliding and Solute Drag Creep
Development of FBG Sensor
Number of Researches 5, Total Funds 5,765,770Yen

◇ Cooperative Research with the Private Sector

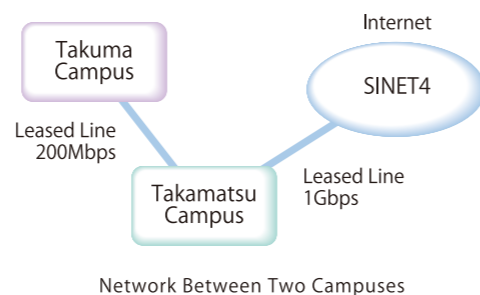
Study on Next Generation Imaging Technologies
Study on Spinning Process Simulation
Applications of Small Scale Wastewater Treatment by a Slanted Soil Chamber Method
Research on visualization and succession of the cultivation techniques of agricultural products
Development of transcranial magnetic stimulation
Development of the tuning adaptor for percussions
A new approach to improve diagnostic ability of x-ray systems
Development of input assistant interface for severely disabled people
Development of a Waste Treatment Plant for Scrap of Covered Wire
Study on viscosity characteristics of drilling mud
Development of an Educational Resource of Semiconductor
Seminar on local transport plan
Development Research on Communication Techniques for Wireless Distribution Systems
A Construction Method of Large Scale Concept-base
Study of Optical Fiber(FBG) Device Applications
Display data generation and form modification software for LED screen (Linux-based)
Support network to cooperate for science education with technical colleges and Nagaoka University of Technology
Development of thermoelectric power generation modules using boron carbide materials
Development of LED-VLC Experiment System for Using Under the Disaster Situation Filled With Rubble and Debris
Motivational Homework Management System
Development of a novel crossing method for seed-propagated strawberry
Trend in CO2 Emission in Takamatsu from 1989 to 2012
Air-conditioning equipment for small animals
Number of Researches 28, Total Funds 8,084,000Yen

Facilities

◆Networking and Computing Service Center

■Network Infrastructure

A dedicated line with 200Mbps is connected between the two campuses. The campuses have a dedicated connection with 1Gbps to the scientific information network (SINET).



■Computing Service

○Takamatsu Campus

Automatically-recoverable computers are installed in the facilities and are used for education on computer literacy and academic research. 50 client computers for the first training room; 50 client computers for the second training room; 20 client computers for the third training room; and 70 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	46(1)	39(4)	44(2)[2]	51	22	202(7)[2]
Department of Electrical and Computer Engineering	40	43(6)	42(6)	46(10)[1]	44(4)[1]	26(5)	201(31)[2]
Department of Electro-Mechanical Systems Engineering	40	42(3)	41(6)	50(3)[1]	33(3)	37	203(15)[1]
Department of Civil Engineering	40	42(8)	43(6)	42(8)	32(7)	31(5)	190(34)
Department of Communication Network Engineering	40	42(4)	38(7)	44(7)[1]	26(7)[1]	38(5)	188(30)[2]
Department of Electronic Systems Engineering	40	43(3)	42(5)	45(4)	43(4)	41(6)	214(22)
Department of Information Engineering	40	42(7)	42(11)	39(10)	44(7)[1]	34(6)[1]	201(41)[2]
Department of Mechanical Engineering	-	-	-	-	-	11	11
Department of Electrical and Computer Engineering	-	-	-	-	2	4	6
Department of Electro-Mechanical Systems Engineering	-	-	-	-	1	6	7
Department of Civil Engineering	-	-	-	-	2	4	6
Department of Control Engineering	-	-	-	-	-	1	1
Total	280	300(32)	287(45)	310(44)[5]	278(32)[3]	255(27)[1]	1,430(180)[9]

◆Faculty of Advanced Engineering

Classification	Admission Capacity	Enrollment		Total
		1st	2nd	
Advanced Course in Industrial and Systems Engineering	24	26(2)	27(3)	53(5)
Advanced Course in Electronics, Information and Communication Engineering	18	18(2)	20(1)	38(3)
Total	42	44(4)	47(4)	91(8)

() Female.
[] Overseas Students
As of May. 1, 2014

■Clubs and Associations of People Sharing Common Interests

◆Sports Clubs

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

◆Cultural Clubs

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

◆Societies

- Go & Shogi Society
- Drama Society
- Calligraphy Society
- Cheerleaders Society
- Microcomputer Society
- Miniature Model Society
- Literature Society
- Painting Society
- Photograph Society
- SPOT Society

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(9㎡), 2 private rooms(13.5㎡), 1 shared room with 2 beds etc(24㎡)
- North Dormitory 3-story building 29 private rooms(11㎡), 1 private rooms(15㎡), 24 shared room with 2 beds etc(15㎡)
- West Dormitory 24 private rooms(10㎡), 8 shared room with 2 beds etc(15㎡)
- Common rooms a-study room, a computer 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	34(2)	37(4)	48(7) (4)	28(5) (1)	10	1 (1)	158(19) (5)

() : Number of Female Students within Total, < > Number of Overseas Students within Total As of May 1, 2014



■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 20 shared room with 2 beds etc(13.5㎡)
Three houses 5-story building 46 private rooms(9㎡), 69 shared room with 2 beds etc(18㎡)
- Shiun-ryo (Takuma Campus) Four houses 5-story building 12 private rooms(9㎡), 38 shared room with 2 beds etc(18㎡)
- 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	59(8)	49(10)	40(5) (1)	42(6) (2)	32(3) (1)	7 (1)	229(33) (4)

() : Number of Female Students within Total, < > Number of Overseas Students within Total As of May 1, 2014



After Graduation

■Employment or Academic Situation

As of April 1, 2014

◇Takamatsu Campus

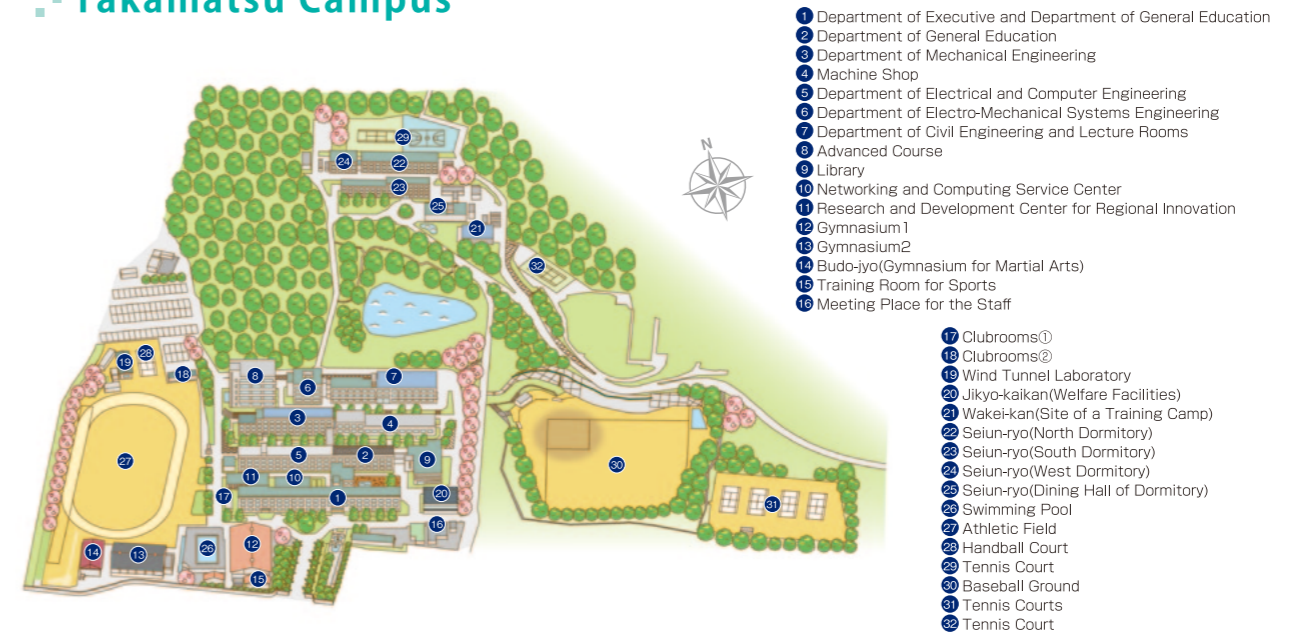
Department	Department	Number of Graduates	Number of the Students who Further their Education	Number of Employed	Number of the Other	Job Offered Companies
Mechanical Engineering		35	10	25	0	661
Electrical and Computer Engineering		35	26	7	2	
Electro-Mechanical Systems Engineering		32	16	16	0	
Civil Engineering		31	13	16	2	
Total		133	65	64	4	
Course	Advanced Course in Industrial and Systems Engineering	23	11	12	0	

◇Takuma Campus

Department	Department	Number of Graduates	Number of the Students who Further their Education	Number of Employed	Number of the Other	Job Offered Companies
TeleCommunications		39	9	29	1	429
Electronics		36	13	23	0	
Control Engineering		32	8	24	0	
Information Engineering		32	20	12	0	
Total		139	50	88	1	
Course	Advanced Course in Electronics, Information and Communication Engineering	19	1	17	1	

Campus Map

■Takamatsu Campus



■Takuma Campus



Accounting

◇Revenue and Expenditure (2013)

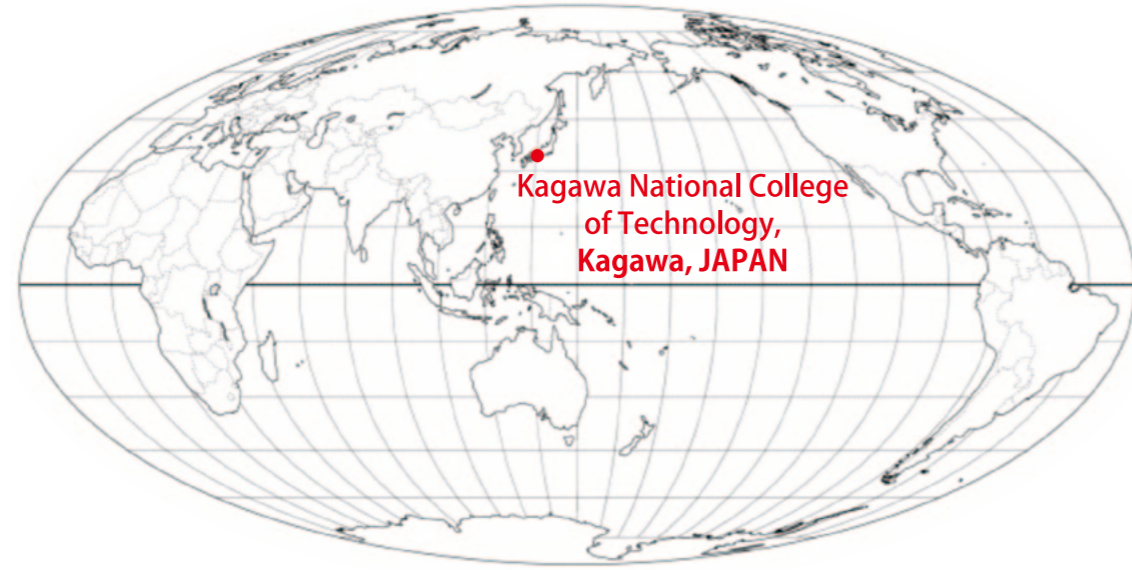
●Revenue (a monetary unit : 1,000yen)

Grant for working Expenditure	268,851
Facilities Improvement Expenses	888,384
Self-Revenue	382,723
Tuition and Entrance Examination Fee	11,747
Miscellaneous Revenue	45,957
Industry-University Cooperation Research Revenue and Donation	186,830
Other Subsidy	1,784,492
Total	

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

Educational Research Expenses	472,151
General Administrative Expenses	201,680
Facilities Improvement Expenses	888,384
Industry-University Cooperation Research and Donation Project Expenses	34,288
Other Subsidy	186,830
Total	1,783,333

Access from International Airports to Kagawa National College of Technology



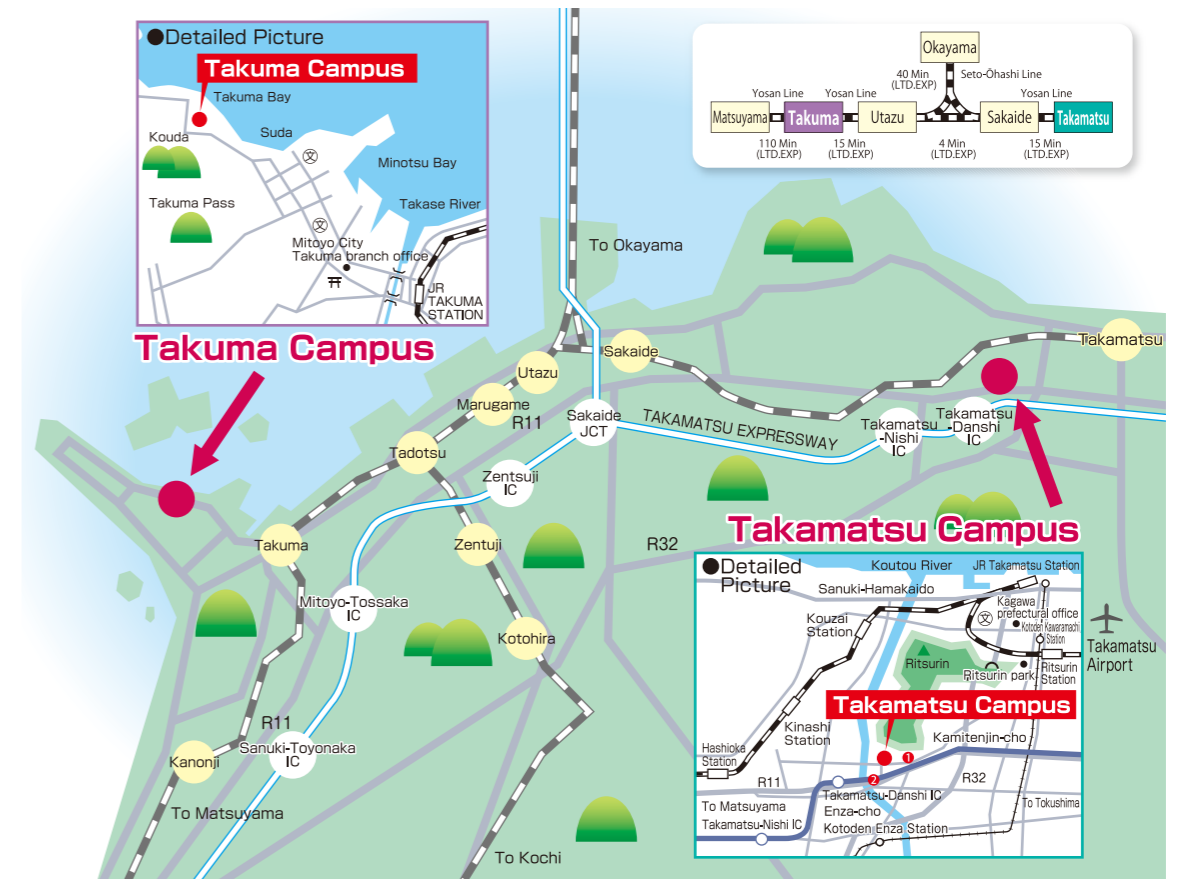
Kagawa National College of Technology, Kagawa, JAPAN



- 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 KNCT is only 20 minutes by car.

Access Map



Takuma Campus

- From JR Takuma Station (Yosan Line)
15 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
20 minutes by car
Kotoden Bus(No.5 bus stop) for Mimaya-Prefecture Swimming Pool → 6 minutes walk from Nishi-Tanaka bus stop②
Kotoden Bus(No.5 bus stop) for Yusa-Iwasaki, Yusa-Ikenishi or Ikenishi-Konarakuyu → 10 minutes walk from Koyama bus stop①
- From Takamatsu Expressway IC
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