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.


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
		Reading of Literary works	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
		Overseas English Program	1
Core Eng. Subjects	Compulsory	Experiments and Practicals Ⅰ	2
		Experiments and Practicals Ⅱ	2
		Thesis Research Ⅰ	6
		Thesis Research Ⅱ	10
		Seminar Ⅰ	2
		Seminar Ⅱ	2
	Elective	Special Lectures	2
		Internship Ⅰ	1
		Internship Ⅱ	2
		Internship Ⅲ	4
		Internship Ⅳ	6

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
		Project Management Theory	2
		Solid State Electronics	2
		Integrated Circuits	2
		Semiconductor Physics	2
		Power Electronics	2
		Information and Communication Engineering	2
		Microwave Engineering	2
		Digital Signal Processing	2
		Knowledge Computing	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
Eng. Subjects of CV Course	Elective	Seismic Design	2
		Maintenance Engineering	2
		Structural Analysis in Civil Engineering	2
		Transport Planning	2
		Urban Design	2
		Prevention of Natural Disasters Ⅰ	2
		Environmental Disaster Prevention Engineering Ⅱ	2
		Advanced Fluid Dynamics	2
		Civil Mathematical Planning	2
		Infrastructure Planning	2
		Information Technology and Systems	2
		Introduction to Civil Engineering	2
		Environmental Ethics and Management	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


Analysis using Motion Capture


Internal Combustion Engine


Water Quality Analysis

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

We provide a consistent curriculum from the associate degree course into the bachelor's degree course. The curriculum subjects consist of " liberal Arts ", " Engineering Basics " and " Field Specialized ".

Courses to enhance specialization in the fields of electronics, information, and communications are aligned to make it possible for studies to continue from the corresponding associate degree course. The course covers all fields of electrical and electronics engineering such as electrical and electronic information communication for the purpose of broadening students expertise.

Thesis research, special research, experiments and exercises are paramount for the program. In thesis research, the chance to research with supervisors collaborating with faculty at university is established. Joint research with local industry to contribute to regional industrial development are also prepared for students. In special research and experiments, students form groups to collaborate with students from the different fields and utilize the specialized knowledge and skills acquired by each individual to develop systems.

We cultivate practical and creative engineers who have a wide range of perspectives that can acquire complex knowledge and advanced skills in specialized fields with multidisciplinary capacity. Furthermore, our students also acquire advanced communication skills, self-sufficiency, high trouble shooting and problem solving capabilities throughout these studies.

◇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
	Elective	Advanced Physical Science	2
		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
		Communication Engineering	2
		Radio and Light Wave Engineering	2
		Advanced Communication Engineering	2
		Applied Electronic Materials Science and Engineering	2
		Machine Learning	2
		Digital Control Engineering	2
		Object Oriented Programming	2
		Applied Network Programming	2
		Database Design	2
		Internship Ⅰ	1
		Internship Ⅱ	2
		Internship Ⅲ	4
		Internship Ⅳ	6

Stockholm International Youth Science Seminar, SIYSS
(Image provided courtesy of the Japan Prize Foundation)

The world congress of Imagin Cup 2015 at Microsoft Corporate headquarters.
(Image provided courtesy of Microsoft Corp.)

An international conference MJIC2020