

The Details of Research and The staff in Charge of Graduate School of Engineering

Department	Major	Laboratories	Staff	Details of Education / Research Fields
Mechanical Systems Engineering	Mechanical Systems Engineering	Mechanics of Materials	Associate Professor Takeshi Iwamoto	<p>Experimental study on impact transformation-thermo-mechanical behavior of materials with phase transformation and characterization by observation of microstructure/ Design and development of new member with high collision energy absorption for automobiles by using adhesive joint and new material with high impact energy absorption based on stress analysis of crash process Development and modification of impact testing method Multi-scale analysis of TRIP steel based on the homogenization technique. Dislocation dynamics simulation by level-set method and coupling with a transformation-crystal plasticity theory. Simulation of interface motion driven by phase transformation using the level-set method</p>
		Fluid Engineering	Professor Keiia Nishida Associate Professor Youichi Ogata	<p>Research on engine in-cylinder flow phenomena Liquid fuel atomization, spray evaporation and mixture formation mechanisms Fuel injection technology for combustion and emission control Elucidation of the flow mechanism in engineering applications. Fluid force analysis of such as fish using fluid-structure interaction simulations. Measurement and numerical study on two-phase flow.</p>
		Reactive Gas Dynamics	Professor Takuma Endo Associate Professor Tomoyuki Johzaki Assistant Professor Woogyung Kim	<p>Fundamental studies of high-speed reactive gas flows such as detonations or explosions. Applied and fundamental investigations on aerospace propulsion devices using detonations or laser-produced plasmas. Development of new internal combustion engines or heat sources using high-speed combustion. Numerical study on laser-plasma physics such as laser fusion or laser detonation. Physics and chemistry of gas explosions</p>
		Machine Dynamics	Associate Professor Yasuhisa Sekiguchi Assistant Professor Yuji Harata	<p>Diagnostics and condition monitoring of machines; Machine noise reduction; Damping characteristics of adhesive joints; Analytical and experimental studies on linear and nonlinear vibrations in mechanical deterministic and undeterministic systems; Nonlinear vibration analysis of machines and structures; Vibration control of wind turbines; Analytical studies on nonlinear dynamics of biped robot</p>
		Mechanical Design and Systems	Professor Soichi Ibaraki Assistant Professor Kiyotaka Ikejo	<p>Three-dimensional measurement of the motion of machine tools and its control; Kinematic modelling of machine tools and robots and error diagnosis; Three-dimensional geometric measurement; Monitoring and intelligent control of machining processes. Strength, failure analysis and design of gear drives; Simulation of gear vibration and noise; Development and design of a new-type gear with higher strength and performance than that of the Involute gear; Estimation and improvement of power transmission performance of gear and traction drives; Improvement in performance of gear pumps; Design and tribology of various machine elements.</p>
		Machining and Machining System	Professor Keiji Yamada Associate Professor Ryutaro Tanaka Assistant Professor Katsuhiko Sekiya	<p>The sensing technology and the components for machine tools. Machining for the difficult-to-cut materials. Development of the free-cutting steels and the new cutting tools. Laser assisted machining process Laser processing of brittle materials.</p>
		Manufacturing Systems A	Professor Kazuhiro Ohkura	<p>The realization of autonomous artifacts and the collective intelligence based on the concept of autonomous distributed systems by building swarm robotic systems or conducting computer simulations with emerging techniques in the field of computational intelligence.</p>
		Manufacturing Systems B	Associate Professor Toru Eguchi	<p>Research on design, planning and control of manufacturing systems. Research on optimization of production planning and scheduling.</p>
		Control Engineering	Associate Professor Nobutaka Wada	<p>Research on control theory and its application to mechanical systems. • Optimal servo control for constrained control systems • Control system design based on numerical optimization • Dynamical control of vehicles • Control application to human-machine systems</p>

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Mechanical Science and Engineering	Mechanical Material Engineering	Materials Physics	Professor Associate Professor Gen Sasaki Kenjiro Sugio	Elucidation of physics phenomena in high-functional and high-performance metals, ceramics and metal matrix composites, and development of these materials; (1) Material process optimization with nano- and meso-scale texture control, (2) Evaluation of mechanical and functional properties in wide range from nanoscale to millillicscale, (3) Observation and characterization of microstructure with optical, scanning electron and transmission electron microscopes, (4) Modeling with computer simulations (molecular dynamics method, finite element method, etc.)
		Property Control of Materials	Professor Assistant Professor Kazuhiro Matsugi Yongbum Choi	Analyses and micro-macro modeling for materials fabrication process, and development of materials property control by their techniques; (1) casting using the material control technology, the alloying using the sintering method, and a diplo-phasing and compositing, (2) thermal and mechanical conditions of the material engineering quality of the material by the analysis of a material process, research-and-development, (3) nano-meso scale by the mechanical engineering techniques, such as control of the dynamic or control
		Net Shape Manufacturing	Associate Professor Nobuhiro Nishino	Study of the microwave heating/sintering and its application. Development of the application of the plasma-surface interaction. Development of the solver to simulate plasma, gas, liquid, and solid simultaneously.
		Materials Joining Science and Engineering	Professor Associate Professor Kenji Shinozaki Motomichi Yamamoto	<ul style="list-style-type: none"> Development of high quality / high efficiency welding and blazing processes using hot-wire laser welding, hot-wire GTAW and hot-wire blazing techniques Evaluation of hot cracking susceptibility and elucidation of mechanism of hot cracking during welding using in-situ observation technique Prediction method for hot cracking during welding using computational simulation (FEM) In-situ temperature measurement using high-speed cameras during welding Prediction method for microstructure formation of weld metal during welding using thermodynamics database
		Engineering Elasto-Plasticity	Associate Professor Assistant Professor Ryutarō Hino Hiroshi Hamasaki	Theory of elasto-plasticity and its applications Mechanical properties of materials, and identification of material parameters Numerical simulation and process analysis of cold/hot (warm) metal forming Optimization problems in metal forming Crystal plasticity and micro mechanics
		Strength and Fracture of Materials	Professor Assistant Professor Atsushi Sugeta Hiroyuki Akebono	The microscopy of the fatigue crack growth mechanism by using high-resolution microscope The evaluation of strength of advanced structural materials The estimation of fatigue strength of spot and laser welded structures.
	Energy Engineering	Thermal Engineering	Professor Associate Professor Assistant Professor Yukihiko Matsumura Shuhei Inoue Machi Kanna	Chemical humidity control for air conditioning, production of hydrogen from biomass using supercritical water, heat transfer and chemical reactions in supercritical water, structural analysis of nanocrystal, fundamental research of carbon nanotube, hydrothermal pretreatment of lignocellulosic biomass
		Combustion Engineering	Professor Associate Professor Akira Miyoshi Daisuke Shimokuri	<ul style="list-style-type: none"> Construction of reaction mechanisms for practical combustion Improvement of IC engine combustion based on detailed kinetic analysis Measurements of ignition properties of fuel components and mixtures Improvement of combustion based on the ignition characteristics of fuels Low NOx, Low SPM tubular combustion Micro combustor Fire safety
		Plasma Science	Professor Assistant Professor Shinichi Namba Leo Matsuoka	Applications of high-density arc plasmas to scientific and engineering fields Development of plasma window for separation between vacuum and atmosphere Development of coherent/incoherent bright X-ray sources driven by lasers Measurement of spatial structure of plasmas by light Development of efficient isotope separation method by utilizing light-induced diffusion processes Plasma diagnostics by non-linear laser spectroscopy
		Quantum Energy Applications	Professor Associate Professor Assistant Professor Satoru Endo Kenichi Tanaka Tsuyoshi Kajimoto	Monte Carlo simulation on interactions of radiations with matter. Microdosimetry of radiations. Study of Bron neutron capture therapy and brachytherapy, Measurement of nuclear reaction cross sections in high and medium energy radiations Measurement of gamma radiations, alpha and beta particles and environmental radioactivities.
		Quantum Materials Science and Engineering	Professor Takayuki Ichikawa	<ul style="list-style-type: none"> Quantum Effect of Hydrogen in Materials Corelation between Electronic States and Functions of Materials which are in particular related to Secondary Battery Materials (Li-Ion and Ni-MH), Fuel Cell with novel mechanisms, Energy Conversion Systems (Thermochemical Hydrogen Production and Electrolysis of NH₃ and H₂O) and/or Solid State Hydrogen Storage Materials.

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System Cybernetics	Fundamentals of System Cybernetics	Social Informatics	Professor Ichiro Nishizaki Associate Professor Tomohiro Hayashida Assistant Professor Shinya Sekizaki	Research interest of Social Informatics Lab covers decision analysis for organizations with competitive or cooperative relationships, data analysis of business activities, modeling of artificial agents with psycho-behavioral preferences and so forth. Our researches also relate to the following disciplines: game theory, multiattribute utility analysis, simulation analysis, artificial agent modeling, network analysis, nonlinear data analysis, and application for electricity market. We are committed to postgraduate education of working people.
		Production Systems Engineering	Professor Katsuhiko Takahashi Associate Professor Katsumi Morikawa Assistant Professor Keisuke Nagasawa	Research on design, planning and control techniques of large-scale, complicated manufacturing systems and supply chains. Some research topics are the utilization of human capability as a fundamental element of the production system, the development of manufacturing system which adapts to the change of manufacturing environment, and the simulation-based study of production systems.
		Mathematics	Professor Masaru Ikehata Professor Tetsutaro Shibata Professor Masao Hirokawa Associate Professor Wakako Kawashita Associate Professor Yasumasa Saisho Associate Professor Yong Moo Chung Associate Professor Hiroyoshi Mitake Assistant Professor Satoki Uchiyama	Research on inverse problems and the eigenvalue problems of differential equations. Mathematical analysis of linear PDEs. Stochastic differential equations, stochastic analysis and their applications. Examples: small random perturbations of dynamical systems, stochastic mechanics, probabilistic applications to mathematical biology and quantum theory. Dynamical systems and ergodic theory. Research on nonlinear elliptic and parabolic differential equations, and applications to the dynamical system and phenomenological theory. Statistical physics of neural networks.
	Applied Cybernetics	Control Systems Engineering	Professor Toru Yamamoto Associate Professor Shuichi Ohno Specially Appointed Lecturer Shin Wakitani Assistant Professor Masayoshi Nakamoto	Research and education on system control technology and digital signal processing. Specifically, adaptive & learning control system technology for industrial systems and welfare systems, and digital signal processing for communication systems and image processing.
		Electric Power and Energy System	Professor Naoto Yorino Associate Professor Yoshifumi Zoka Assistant Professor Yutaka Sasaki Assistant Professor Satoshi Taoka	Research mainly concerned with large-scale, complex and nonlinear electric power systems, including problems of operation and planning, voltage stability, frequency control, reliability, renewable energy, distributed power generation, microgrid/smartgrid, vehicle-to-grid, optimization technique, control system design, artificial intelligence application, analysis technology, algorithm development, etc.
		Biological Systems Engineering	Professor Toshio Tsuji Associate Professor Yuichi Kurita Assistant Professor Zu Soh	The main subject of research is the measurement, analysis and modeling of biological functions with its engineering applications. The research area covers human motion analysis, bioelectric signal processing, welfare robotics, artificial life, soft computing, electric circuit design and medical electronics engineering, etc.
		Robotics	Professor Idaku Ishii Associate Professor Takashi Takaki Specially Appointed Associate Professor Fengwei An Assistant Professor Yuji Matsumoto Specially Appointed Associate Professor Mingjun Jiang	Research on hyper-human robotics technology exceeding man's capability, and its real world applications. For example, high-speed robot vision, robot mechanism design, mobile robot, sensor-based manipulation, multimedia applications, industrial applications, medical applications, bio-applications, etc.
		Applications of Cybernetics	Professor Yoshio Matsumoto Professor Hidehiko Komine Associate Professor Natsuki Miyata	Research on the modeling and application of a complicated phenomenon. For example, measurement and diagnosis for the living body information and system integration, engineering application, etc.

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Information Engineering	Information Engineering	Embedded Systems	Associate Professor Yasuaki Ito	Research on hardware algorithm for combinatorial optimization using FPGAs, concurrent processing systems for big data, web-based lecture supporting system, and development of embedded systems.
		Computer Systems	Professor Koji Nakano Assistant Professor Daisuke Takafuji	Research on architectures and algorithmic techniques for new computation and network environments including programmable logic devises, GPU, network of workstations, and multi-core systems.
		Distributed Systems	Professor Satoshi Fujita Associate Professor Sayaka Kamei	Theory and practice on parallel and distributed systems, such as secure and efficient resource sharing schemes, real-time file exploration in wide area networks, high-performance computing using PC clusters, contents delivery in service providing networks, and environment monitoring systems based on wireless sensor networks.
		Visual Information Science	Professor Kazufumi Kaneda Associate Professor Toru Tamaki Assistant Professor Bisser Raytchev	Computer graphics, visualization, image processing, image recognition and understanding, computer vision, machine learning, and various applications of these technologies, such as biomedical imaging, optical design, video surveillance and human-computer interaction.
		Learning Engineering	Professor Tsukasa Hirashima Associate Professor Yuusuke Hayashi	Research on technology-enhanced learning systems designed based on knowledge modeling, implemented with artificial intelligence, multimedia and web technologies, and then practiced from viewpoint of education and psychology.
		Foundation of Computer Science	Professor Toru Nakanishi Associate Professor Teruaki Kitasuka Assistant Professor Katsunobu Imai	Cryptography and information security. In particular, privacy-enhancing authentications and network services, and implementations based on elliptic curve cryptosystems. Mobile and ubiquitous computing. In particular, communication, activity recognition, and location sensing using wireless devices. Theoretical studies on future computing systems. In particular, cellular automata and reversible computing
		Dependable Systems	Professor Tadashi Dohi Associate Professor Hiroyuki Okamura	Dependable computing, Fault tolerant computing, Computer security, Software reliability assessment, Performance evaluation, Reliability and Maintenance, Applied probability, Applied statistics, Operations research, Stochastic modeling.
		Big Data Engineering	Professor Takio Kurita Associate Professor Jun-ichi Miyao Associate Professor Yasuhiko Morimoto	Pattern recognition and machine learning, Large-scale information processing and data management required for data mining, information retrieval, IoT (Internet Of Things) information processing. Real time processing for multimedia, Embedded media software.
		Informatics and Mathematical Science	Professor Chuzo Iwamoto Professor Hiroaki Mukaidani Associate Professor Tadashi Shima	Computational complexity theory, hierarchies of complexity classes, and combinatorial computational geometry. System theory and intelligent information processing, Stabilization and optimization for stochastic systems, Numerical analysis and optimal design for mechatronic systems. Stochastic processes, especially going around fractals. Spectral analysis of the generators associated with the stochastic processes on fractals.

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Chemical Engineering	Chemical Engineering	Thermal-Fluid Engineering	Professor Akihiro Yabuki Associate Professor Takashi Ogi Assistant Professor Ratna Balgis	Researches on the production of functional fine- and nano-particles and thin films using aerosol and liquid process and the evaluation of related phenomena such as fluid, heat transfer, chemical reaction of the gas-liquid, mass transfer inside the reactor, nucleation/growth, clean technology, self-healing coatings, recovery of rare earth, and alternative materials of rare earth.
		High-Pressure Fluid Property	Professor Shigeki Takishima Associate Professor Shinichi Kihara Assistant Professor Ikuo Ushiki	Measurement and modeling of the equilibrium and transport properties for supercritical fluid + polymer systems. Development of innovative material processing technology and functional organic and inorganic materials utilizing particular characteristics of supercritical fluids.
		Polymer Technology	Professor Satoshi Nakai Associate Professor Takashi Iizawa Assistant Professor Takehiko Goto	Education and research on wastewater treatment, restoration of water environment and environment evaluation technologies using novel artificial and/or natural materials, utilization of waste to produce valuable materials. Physical chemistry of polymer gel. Development of separation system using stimulus responsive polymers or polymer gels. Research on the structure controlling method of polymer gel. Development of a highly efficient functional polymer and analysis of reaction using polymer.
		Separation Technology	Professor Toshinori Tsuru Associate Professor Masakoto Kanezashi Assistant Professor Hiroki Nagasawa	Development and characterization of nano- or subnano-porous ceramic membranes, and their application to gas separation, pervaporation / vapor permeation, nanofiltration / reverse osmotic processes, and catalytic membrane reactors. Transport mechanism of gas/liquid molecules through microporous membranes. Evaluation of membrane-based separation processes.
		Fine Particle Technology	Professor Kunihiro Fukui Associate Professor Toru Ishigami Assistant Professor Tomonori Fukasawa	Education and research on the development of novel high-performance classification system, the development of powder treatment process using microwave heating method, the improvement and life prediction of bag filter system, the analysis of particle dispersed system by CFD-DEM simulation, the fabrication of standard particles for ISO, the measurement of physical and chemical particle property, the application of zeta potential measuring device and vibration fluidized bed.
		Equipment Materials Engineering	Professor Manabu Shimada Associate Professor Yoshinori Isomoto Assistant Professor Masaru Kubo	Education and research on the fabrication of fine materials and micro-controlled surfaces by the generation and transport of gasborne matter, on the contamination phenomena induced by small particulate and trace amount of gaseous matter, on the development of synthetic process of organic-inorganic hybrid porous materials, and on the plant maintenance introduced by the characteristics, degradation process, risk management, life prediction of various component materials, and environmental and economical benefits.
		Green Process Engineering	Associate Professor Soonchul Kang Assistant Professor (under consideration)	Education and research on treatment of waste and wastewater, evaluation of environmental impacts of the human activities and its reduction by greenization of chemical processes, and ecological engineering for conservation and restoration of damaged ecosystems.

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Applied Chemistry	Applied Chemistry	Applied Organic Chemistry	Professor Atsushi Ikeda Assistant Professor Kouta Sugikawa	Education and research on development of synthetic reactions and supramolecular complexes applied for creating useful organic molecules in everyday life and high technology.
		Organic Materials Chemistry	Professor Joji Ohshita Assistant Professor Yohei Adachi	Education and research on organosilicon compounds, in particular synthesis of polysilane derivatives containing π -conjugated systems and their applications to organic electronic materials, and development of functional dye materials with epoch-making optoelectronic characteristics .
		Functional Polymer Chemistry	Professor Takeshi Shiono Associate Professor Yuushou Nakayama Assistant Professor Ryo Tanaka	Education and research on polymer chemistry, especially, precision polymerization catalyzed by transition metal complex and development of new polymers from renewable biomass.
		Reaction Design Chemistry	Professor Itaru Osaka Associate Professor Hiroto Yoshida Assistant Professor Kimihiro Komeyama	Our research aims at an exploitation of new synthetic reactions and reagents that can be used for the selective and environmentally benign transformation of various organic compounds with high efficiency in energy and atom-economy. Particularly, heterofunctionalization of carbon-carbon multiple bonds with transition metal catalysts, and photochemical generation of active intermediates and their use for cyclization reactions are currently under investigation. Moreover, new aryne chemistry to provide unprecedentedly substituted arenes is growing up in our laboratory.
		Analytical Chemistry	Professor Shinjiro Hayakawa Associate Professor Kenji Komaguchi	Education and research on analytical chemistry, especially, development and application of new methods in x-ray spectroscopy.
		Materials Physical Chemistry	Professor Yousuke Ooyama Associate Professor Ichiro Imae	Development of novel functional dye materials with epoch-making optoelectronic characteristics, fluorescence sensing ability and therapeutic activity. Education and research on new functions of organic/inorganic materials and their applications to novel electronic/optoelectronic devices
		Inorganic Materials Chemistry	Professor Kei Inumaru Associate Professor Kiyofumi Katagiri Assistant Professor Hiroshi Fukuoka	Research and education on ceramics, with main interests on molecular design, synthesis, characterization, and applications of new inorganic or inorganic-organic hybrid materials having functional nano-structures.
		Environmental Catalyst Chemistry	Professor Tsuneji Sano Associate Professor Masahiro Sadakane Assistant Professor Nao Tsunoji	Synthesis of inorganic microporous and mesoporous materials such as zeolites and related materials, and their application to catalysts and adsorbents in environmental and energy research fields.

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Civil and Environmental Engineering	Structural Engineering	Structural Materials and Concrete Structures	Professor Kenji Kawai Assistant Professor Yuko Ogawa Assistant Professor Bui Phuong Trinh	Education and research on the physicochemical characteristics of cementitious materials, the mechanical and durability performance evaluation of plain, reinforced and prestressed concretes, effective utilization of resources, environmental impact evaluation of concrete, and maintenance of concrete structures.
		Structural Engineering	Associate Professor Kenichiro Nakarai Assistant Professor Ichiro Ario	Education and research on performance-based design on steel, concrete, and composite structures, earthquake and wind resistance design and vibration control, natural disaster prevention, remaining strength of aged deteriorated existing structures, maintenance and asset management of bridges, and various computer simulation technologies.
		Geotechnical Engineering	Professor Takashi Tsuchida Assistant Professor Ryota Hashimoto	Evaluation of mechanical property of soft ground, Ground improvement techniques, Engineering properties of cement treated clay and recycled geo-materials, Development of new construction technology for waste disposal facility in coastal areas, In-situ testing of weathered granite soil and the application on disaster prevention of natural slopes in heavy rainfall, Estimation and countermeasures of sand liquefaction by earthquakes, Evaluation of seismic site response of ground, Earthquake resistant design of geotechnical works, Maintenance and condition evaluation method for road pavement and geotechnical structures, Conservation of historic structures based on geotechnical engineering.
	Environmental Engineering	Global Environment and Planning	Associate Professor Makoto Tsukai Associate Professor Masaaki Fuse Assistant Professor Lam Chi Yung	Development of planning methodology, and analysis for following themes; recycling and low-carbon society, urban transportation system by making full use of a economical evaluation, a statistical model, and a mathematical planning, a travel behavior model, or network science. Researches on material flows for scarce metals, market share forecast on low emission vehicles, development of statistical model for "big-data", on consensus building by statistical approach for text data, and safety assessment for infrastructures.
		Environmental Preservation Engineering	Professor Akiyoshi Ohashi Associate Professor Noriatsu Ozaki Assistant Professor Tomonori Kindaichi	Biological wastewater treatment. Energy recovery from biomass by microbes. Nitrogen and Phosphorous removal . Microbial community analysis. Analysis and modelling of behavior of trace toxic chemicals in air and water environments. Application of membrane filtration technique on wastewater treatment.
		Hydraulic Engineering	Professor Yoshihisa Kawahara Associate Professor Tatsuhiro Uchida	Monitoring river environment using autonomous UAV Numerical prediction of localized heavy rains using meteorological radars Modeling of interactions among flood flow, vegetation and morphology in rivers Study on multi-scale phenomena of flow and sediment transport in a dynamic fluvial system Transport and sorting mechanism of sediment mixture in gravel bed river Flow, sediment transport and topographical changes in rivers due to tsunami Multi-phase flows with sediment transport around river structures
		Coastal Engineering	Associate Professor Kiyoshi Kawanishi Associate Professor Tadashi Hibino Assistant Professor Shinya Nakashita	Acoustic measurement of wash road 2-D mapping of velocity and salinity fields using fluvial acoustic tomography Monitoring of ascending tsunami/tidal bore Development of technology to improve environment in river bank Practical use of "sediment microbial fuel cells" more than solar batteries Research on groundwater and tidal flat environment in tidal estuaries

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Transportation and Environmental Systems	Transportation and Environmental Systems	Structural Systems	Associate Professor Yoshikazu Tanaka Assistant Professor Satoyuki Tanaka	Buckling and ultimate strength evaluations Fracture and fatigue strength evaluations Computational Mechanics, Applied Mechanics, Solid/Structural Analysis Research on a floating structure for offshore wind power generation Energy harvesting using mechanical vibration Nondestructive inspection, Numerical electromagnetic field analysis
		Structural Design	Professor Mitsuru Kitamura Associate Professor Akihiro Takezawa	Design technologies and optimization methods for large-scale structures such as vehicles. Topology optimization method and its application. Computational method for structural analysis.
		System Safety	Professor Yukio Fujimoto Associate Professor Eiji Shintaku	Research on the development of sheet type sensors for dynamic load measurement, impact force measurement, deformation measurement, stress measurement, and structural monitoring. Structural reliability analysis and inspection planning of aging structures. Automatic control and planning of ship equipments and systems.
		Integrated Engineering for Vehicle and Environmental Systems	Professor Kunihiro Hamada Assistant Professor Noritaka Hirata	Information system to support the design and production of vehicles Development of a new transportation system in consideration of human factors. Integration of logistics planning and design of vehicles
		Marine Transportation System	Professor Hironori Yasukawa Associate Professor Susumu Tanaka Assistant Professor Masaaki Sano	Development of an environment friendly marine vehicle Research on prediction of performances of marine vehicle Research on marine navigation safety Research on a new energy transportation
		Fluid Dynamics for Vehicle and Environmental Systems	Professor Yasuaki Doi Associate Professor Hidemi Mutsuda Assistant Professor Takuji Nakashima	Research on passive/active stall control of aerofoil, Research on the reduction of wind resistance acting on a bridge of ship, Research on seakeeping performance of a ship in nonlinear wave, Research on CFD technology for aerodynamics and vehicle performance, Assessment and prediction of ocean-atmosphere environment due to vehicle transportation, Research on advanced technology of electrical energy generated by renewable energy (wind, ocean power, vibration) Research on a technology of energy harvesting
		Airworthiness and Seakeeping for Vehicles	Professor Hidetsugu Iwashita Associate Professor Yuji Sakuno	Research on the aerodynamic properties of WIG flying over the waves, Research on the passive control of the wind turbine with elastic composite material, Research on the human-powered aircraft, Research on the theoretical estimation of the seakeeping of high-speed ship, Research on the remote sensing of marine environment, Research on the remote sensing of PM2.5 measurement
		Ocean-Atmosphere Systems	Assistant Professor Masazumi Arai	Study of the Kuroshio effect to Seto Inland Sea environments, Study of anomalous sea levels generated in Hiroshima Bay by large internal waves, Study of the spreading process of Ota River water discharged into Hiroshima Bay, Study of horizontal fish finding by the mono-static sonar, Study of seiches, Study of tidal mixing and tidal front

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Architecture	Building Engineering	Building Materials and Components	Professor Takaaki Okubo Assistant Professor Atsushi Teramoto	Applying technologies of RFID for the building life-cycle support Durability design for reinforced concrete buildings Repairing method for buildings, materials and components for sustainable buildings Applying wireless sensor technology for maintenance of building elements Control technology of cracking in concrete Evaluation for aesthetic quality of concrete texture
		Structural Mechanics of Building	Associate Professor Takuro Mori	Study on large-scale wooden construction using wooden materials including CLT Research on development of wooden rigid frame structure Evaluating method of residual seismic performance of existing wooden construction Long term performance evaluation of wooden buildings and materials
		Building Structures	Professor Hiroshi Tagawa Assistant Professor (under consideration)	Seismic design of steel structures Vibration control system of steel structures Beam-to-column connections and column-bases of steel structures Buckling analysis and design of steel frames Seismic retrofit of existing structures
		Disaster Prevention Engineering	Professor Naohiro Nakamura Associate Professor Hiroyuki Miura Assistant Professor Yuji Miyazu	Seismic response and risk analyses of earthquake resistant, vibration controlled and isolated buildings Estimation of soil-structure interaction effects Shock-resistant design of buildings Earthquake ground motion evaluation Building damage estimation Spatial data analysis for risk evaluation and damage identification Seismic control system of buildings
		Earthquake and Structural Engineering	Associate Professor Yo Hibino	Seismic design of reinforced concrete members Seismic performance evaluation of reinforced concrete buildings Seismic retrofit and repairing methods of reinforced concrete buildings Damage estimation of reinforced concrete buildings
	Architecture	Architectural Planning	Associate Professor Hideaki Sumikura Assistant Professor Aya Ishigaki	Housings in urban and local area, The planning of social welfare and community facilities, The region-based housing supply system and The planning and the management of building production processes
		Architectural History and Design Theory	Associate Professor Shoichiro Sendai Assistant Professor Susumu Mizuta	Theory on peace architecture and urban design. Theory on environment and landscape design. History of modern architecture and modern urbanism in Japan and World. Research and planning for the conservation of buildings and towns.
		Architectural Environment	Professor Daisaku Nishina Associate Professor Takahiro Tanaka Assistant Professor Sayaka Kindaichi	The planning of regional water environment, The efficient use of energy in buildings, The evaluation techniques for regional living environment and landscape, and The problems concerning with human behavior and/or environmental psychology. Urban environmental planning (green space, climate, built environment). Compact city. Sustainable community design.
		Architectural Project	Associate Professor Mitsugu Okagawa	Theoretical research of architectural design method and theoretical projection. Research on architectural space as information. Research on urban space. Construction the design method which present-day society and technical progress demand through critical analysis of the design method of modern architecture.