Graduate School of Science and Technology

Curriculum

11 Divisions of Master Course

Division of Mathematics

Algebra
- Advanced Number Theory Ⅰ・Ⅱ
- Advanced Ring Theory Ⅰ・Ⅱ
- Seminar in Algebra ⅠA ⅠB・ⅡAⅡB
- Advanced Applied Algebra

Functional Analysis
- Advanced Theory of Functional Equations Ⅰ・Ⅱ
- Advanced Complex Analysis Ⅰ・Ⅱ
- Seminar in Functional Analysis ⅠA ⅠB・ⅡAⅡB
- Advanced Applied Analysis

Information Mathematics
- Advanced Theory of Probability and Quantum Information Ⅰ・Ⅱ
- Advanced Theory of Stochastic Processes Ⅰ・Ⅱ
- Advanced Probability Theory for Number Theory Ⅰ・Ⅱ
- Seminar in Theory of Probability and Quantum Information ⅠA ⅠB・ⅡAⅡB
- Advanced Mathematics for Statistics
- Advanced Quantum Probability Theory
- Advanced Stochastic Information Theory
- Advanced Theory of Infinite Dimensional Analysis
- Advanced Computational Mathematics
- Advanced Nonlinear Analysis

Geometry
- Advanced Differential Geometry Ⅰ・Ⅱ
- Advanced Nonlinear Geometry Ⅰ・Ⅱ
- Advanced Analytic Geometry Ⅰ・Ⅱ
- Seminar in Geometry ⅠA ⅠB・ⅡAⅡB
- Advanced Applied Geometry

Global Analysis
- Advanced Global Analysis Ⅰ・Ⅱ
- Advanced Topological Analysis Ⅰ・Ⅱ
- Seminar in Global Analysis ⅠA ⅠB・ⅡAⅡB
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Division of Information Engineering

Information Devices
- Advanced Computer Engineering
- Advanced Human-Machine Systems
- Advanced Intelligent Signal Processing
- Advanced Intelligent Control Systems
- Advanced Image Processing Technology
- Advanced Seminar and Experiments in Information Devices ⅠA ⅠB・ⅡAⅡB

Information Processing
- Advanced Algorithms
- Advanced Pattern Information Processing
- Advanced Artificial Intelligence
- Advanced Intelligent Data Analysis
- Advanced Seminar and Experiments in Information Processing ⅠA ⅠB・ⅡAⅡB
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Media Technology
- Advanced Speech and Acoustic Information Processing
- Advanced Visual Information Processing
- Advanced Computer Graphics
- Advanced Language Processing
- Advanced Virtual Reality
- Advanced Seminar and Experiments in Media Technology ⅠA ⅠB・ⅡAⅡB

Information and Communication
- Advanced Networking
- Advanced Wireless Communication Systems
- Advanced Information Security
- Advanced Information Theory
- Advanced Seminar and Experiments in Information and Communication ⅠA ⅠB・ⅡAⅡB

Division of Electrical and Electronic Engineering

Energy and Environment Engineering
- Advanced Electrical Energy Engineering Ⅰ・Ⅱ
- Advaned Material Engineering for Energy and Environment Ⅰ・Ⅱ
- Advaned System Engineering for Energy and Environment Ⅰ・Ⅱ
- Advanced Energy Conversion Engineering Ⅰ・Ⅱ
- Advaned Seminar and Experiments in Energy and Environment Engineering ⅠA ⅠB・ⅡAⅡB

Electronic Materials and Device Engineering
- Advanced Electronic Device Engineering Ⅰ・Ⅱ
- Advanced Electronic Materials Engineering Ⅰ・Ⅱ
- Advanced Vacuum Electronics Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Electronic Materials and Device Engineering ⅠA ⅠB・ⅡAⅡB
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

System, Information and Communication Engineering
- Advanced Theory on System and Control Engineering Ⅰ・Ⅱ
- Advanced Information and Communications System Ⅰ・Ⅱ
- Advanced Information and Communication Engineering Ⅰ・Ⅱ
- Advanced Control and Information System Ⅰ・Ⅱ
- Advanced Seminar and Experiments in System, Information and Communication Engineering ⅠA ⅠB・ⅡAⅡB

Electronic and Biological Information Engineering
- Advanced Electronic and Biological Information Engineering Ⅰ・Ⅱ
- Advanced Applied Engineering for Electronic and Biological Information Ⅰ・Ⅱ
- Advanced Measurement Engineering for Electronic and Biological Information Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Electronic and Biological Information Engineering ⅠA ⅠB・ⅡAⅡB

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11 Divisions of Master Course

Division of Materials Science and Engineering

Nano & Inteligent Materials

- Advanced Intelligent Materials Ⅰ・Ⅱ
- Advanced Nanoelectronic Materials Ⅰ・Ⅱ
- Advanced Nano Analysis Ⅰ・Ⅱ
- Advanced Quantum Optoelectronics Ⅰ・Ⅱ
- Advanced Energy and Environmental Materials Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Nano・Intelligent Materials ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Electronic Materials

- Advanced Electronics Materials Ⅰ・Ⅱ
- Advanced Electronics Devices Ⅰ・Ⅱ
- Advanced Semiconductor Devices Ⅰ・Ⅱ
- Advanced Optical and Quantum Electronics Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Electronic Materials ⅠA Ⅰ B・ⅡA Ⅱ B

Composite Materials

- Advanced Composite Materials Ⅰ・Ⅱ
- Advanced Surface-Modified Materials Ⅰ・Ⅱ
- Advanced Biomaterials Ⅰ・Ⅱ
- Advanced Metal Materials Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Composite Materials ⅠA Ⅰ B・ⅡA Ⅱ B

Division of Applied Chemistry

Organic and Biological Chemistry

- Advanced Applied Organic Chemistry
- Advanced Applied Biomolecular Science
- Frontiers of Advanced Supramolecular Chemistry
- Advanced Soft Matter
- Advanced Functional Polymer Materials
- Advanced Biomaterials
- Advanced Seminar and Experiments in Organic and Biological Chemistry ⅠA Ⅰ B・ⅡA Ⅱ B

Environmental and Energy Science

- Advanced Environmental Chemistry
- Advanced Green Chemistry
- Advanced Functional Energy Materials Science
- Advanced Inorganic Materials Science
- Advanced Conductive Materials Science
- Advanced Low Temperature and Materials Science
- Advanced Surface Chemistry of Solid Interface
- Advanced Bio-Energy Devices
- Advanced Seminar and Experiments in Environmental and Energy Science ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Physical Chemistry of Materials

- Advanced Functional Nanomaterials
- Advanced Applied Solid State Chemistry
- Advanced Applied Magnetochemistry
- Advanced Functional Materials Physical Chemistry
- Advanced Seminar and Experiments in Physical Chemistry of Materials ⅠA Ⅰ B・ⅡA Ⅱ B

Advanced Analytical Chemistry

- Composition Analytical Chemistry
- Structural Instrumental Chemistry
- Organic and Biological Analytical Chemistry
- Inorganic Materials Analytical Chemistry

Division of Mechanical Engineering

Heat and Fluid

- Advanced Thermal Engineering Ⅰ・Ⅱ
- Advanced High Temperature Gasdynamics Ⅰ・Ⅱ
- Advanced Viscous Fluid Dynamics Ⅰ・Ⅱ
- Advanced Fluid Dynamics Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Heat and Fluid ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Computational Fluid Dynamics
- Advanced Combustion Technology
- Advanced Heat Transfer Engineering

Materials and Strength

- Advanced Engineering on Fracture and Strength of Materials Ⅰ・Ⅱ
- Advanced Materials Design System Engineering Ⅰ・Ⅱ
- Advanced Materials Evaluation Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Materials, Science and Engineering ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Informatics of Material Strength
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Design and Production

- Advanced Micromachining Ⅰ・Ⅱ
- Advanced Production Engineering Ⅰ・Ⅱ
- Advanced Creative Design Ⅰ・Ⅱ
- Advanced Integrated Design Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Design and Manufacturing ⅠA Ⅰ B・ⅡA Ⅱ B

Dynamics and System control

- Advanced Mechanical and Functional System Ⅰ・Ⅱ
- Advanced Bioengineering Ⅰ・Ⅱ
- Advanced Intelligent Control System Engineering Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Motion Dynamics and Control ⅠA Ⅰ B・ⅡA Ⅱ B

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Curriculum

11 Divisions of Master Course

Division of Vehicle and Mechanical Engineering

Energy and Fluid Engineering

- Advanced Energy Science Ⅰ・Ⅱ
- Advanced Propulsion Engineering Ⅰ・Ⅱ
- Advanced Fluid Science Ⅰ・Ⅱ
- Advanced Fluid System Engineering Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Energy and Fluid Engineering ⅠA ⅠB・ⅡAⅡB
- Advanced Computational Mechanics
- Advanced Computational Science

Materials and Structural Engineering

- Advanced Materials Science Ⅰ・Ⅱ
- Advanced Structural Mechanics Ⅰ・Ⅱ
- Advanced Theory of Light-Weight Structures Ⅰ・Ⅱ
- Advanced Adaptive Structure System Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Materials and Structure Engineering ⅠA ⅠB・ⅡAⅡB
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Control and System Engineering

- Advanced Man-Machine System Ⅰ・Ⅱ
- Advanced Intelligent Control Ⅰ・Ⅱ
- Advanced Automobile System Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Control and System Engineering ⅠA ⅠB・ⅡAⅡB

Division of Mechatronics Engineering

System Devices

- Advanced Applied Electromagnetism
- Advanced Electronic Devices Engineering
- Advanced Measurement System Engineering
- Advanced Control Systems Engineering
- Advanced System Devices Engineering Practices and Experiments ⅠA ⅠB・ⅡAⅡB
- Advanced Signal Processing Engineering

Sensing Systems

- Advanced Sensing System
- Advanced Intelligent Sensor Engineering
- Advanced Robot System Design Engineering
- Advanced Intelligent Robot Engineering
- Advanced Sensing System Engineering Practices and Experiments ⅠA ⅠB・ⅡAⅡB
- Advanced Information Mechatronics Engineering
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Architecture of Function System

- Advanced Intelligent Systems Control Engineering
- Advanced Control Engineering
- Advanced Functionl System Architecture Engineering Practices and Experiments ⅠA ⅠB・ⅡAⅡB
- Advanced Move Systems Engineering
- Advanced Strength Analysis Modeling
- Advanced Functional System Engineering

Multi-scale Mechatronics

- Advanced Nano-micro System Control
- Advanced Nano-micro Intelligent System
- Advanced Microrobot Engineering
- Advanced Nano-micro-control System
- Advanced Multi-scale Mechatronics Advaced Practices and Experiments ⅠA ⅠB・ⅡAⅡB
- Advanced Medical Mechanical System
- Advanced Bio-system

Division of Civil Engineering

Structural Engineering

- Advanced Structural Analysis Ⅰ・Ⅱ
- Advanced Structural Design Ⅰ・Ⅱ
- Advaned Seminar and Experiments in Structural Engineering ⅠA ⅠB・ⅡAⅡB

Geotechnical Engineering

- Advanced Geotechnical Engineering Ⅰ・Ⅱ
- Advanced Geotechnical Analysis Ⅰ・Ⅱ
- Advaned Seminar and Experiments in Geotechnical Engineering ⅠA ⅠB・ⅡAⅡB

Construction Materials

- Advanced Materials for Civil Engineering Ⅰ・Ⅱ
- Advanced Construction Material Mechanics Ⅰ・Ⅱ
- Advaned Seminar and Experiments in Construction Materials ⅠA ⅠB・ⅡAⅡB
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Hydraulic Engineering

- Advanced Engineering Hydrology Ⅰ・Ⅱ
- Advanced Sediment Hydraulics Ⅰ・Ⅱ
- Advanced River Engineering Ⅰ・Ⅱ
- Advaned Seminar and Experiments in Hydraulic Engineering ⅠⅠA ⅠB・ⅡAⅡB

Urban and Transport Planning

- Advanced Urban System Ⅰ・Ⅱ
- Advanced Transport System Ⅰ・Ⅱ
- Advaned Seminar and Experiments in Urban and Transport Planning ⅠA ⅠB・ⅡAⅡB

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11 Divisions of Master Course

Division of Environmental Science and Technology

Atmosphere and Water Environment

- Advanced Theory of Atmospheric Constituent Ⅰ・Ⅱ
- Advanced Water Environment Ⅰ・Ⅱ
- Advanced Water Environment
- Advanced Ecology
- Advanced Seminar and Experiments in Atmosphere and Water Environment ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Water treatment Engineering

Environmental Science of the Ground

- Advanced Numerical Analysis for Soil
- Advanced Simulation for Soil
- Advanced Analysis of Environmental Change
- Advanced Environmental History
- Advanced Seminar and Experiments in Environmental Science of the Ground ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Internship
- Scientific and Technical English
- EEIE Seminor ME Seminor ACE Seminor Ⅰ・Ⅱ

Urban Environmental Science

- Advanced Environmental Materials
- Advanced Material Cycles
- Advanced Maintenance Engineering for Infrastructure : Basics
- Advanced Maintenance Engineering for Infrastructure : Application
- Advanced Seminar and Experiments in Environmental Science of Infrastructure ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Structural Performance of Buildings

Built Environmental Science

- Advanced Ergonomics
- Advanced Energy Savings
- Advanced Designing of Human Environment Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Indoor environment ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Environment Design
- Advanced Sciences for Sustainable Development
- Practical Internship

Division of Architecture

Architectural Space Designing

- Advanced Theory of Architectural Space Designing Ⅰ・Ⅱ
- Advanced Theory of Technological History of Architecture
- Advanced Theory of Architectural Planning and Design
- Advanced Theory of Architectural Space Designing
- Advanced Theory of History of Architectural Design
- Advanced Theory of Architectural Space
- Advanced Theory of Living Space Planning and Design
- Comprehensive Seminar in Architectural Space Design ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Theory of History of Architecture
- Comprehensive Advanced Theory of Architectural Design
- Advanced Theory of Architectural Design
- Advanced Theory of Urban Space Design

Environmental Designing

- Comprehensive Seminar in Architectural Space Design
- Advanced Theory of Environmental Planning
- Advanced Theory of Environmental EngineeringA・B
- Advanced Seminar and Experiments in Environmental Designing ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Theory of Building Energy Management
- Advanced Internship
- Scientific and Technical English
- EEIE Seminar ME Seminar ACE Seminar Ⅰ・Ⅱ

Materials Designing

- Advanced Theory of Materials and Construction
- Advanced Theory of Concrete EngineeringA・B
- Advanced Seminar and Experiments in Design of Materials and Structures ⅠA Ⅰ B・ⅡA Ⅱ B

Structural Engineering

- Advanced Theory of Structural Engineering Ⅰ・Ⅱ
- Advanced Theory of Structural Analysis Ⅰ・Ⅱ
- Advanced Theory of Applied Structural Mechanics Ⅰ・Ⅱ
- Advanced Theory of Designing Structures Ⅰ・Ⅱ
- Advanced Seminar and Experiments in Structural Engineering ⅠA Ⅰ B・ⅡA Ⅱ B
- Advanced Theory of Steel Structures

建築共通

- Practical Advanced Theory of Architecture
- Extramural Advanced Seminar
- Practical InternshipA・B・C

Graduate School of Science and Technology

Curriculum

4 Divisions of Doctoral Course

Division of Mathematics

Algebra
- Advanced Research in Algebra

Functional Analysis
- Advanced Research in Theory of Functional Equations

Mathematical Information Science
- Advanced Research in Mathematical Information Science

Geometry
- Advanced Research in Geometry

Global Analysis
- Advanced Research in Global Analysis

Division of Electrical and Electronic, Information and Materials Engineering

Electrical Energy Engineering
- Advanced Research in Electrical Energy Engineering

Electronic Materials Engineering
- Advanced Research in Electrical and Electronic Materials Engineering

Applied Beam Engineering
- Advanced Research in Beam Engineering

Materials Science and Engineering
- Advanced Research in Nano Materials Engineering
- Advanced Research in Intelligent Materials Engineering

System and Control Engineering
- Advanced Research in System and Control Engineering

Semiconductor Engineering
- Advanced Research in Electronic Materials

Information System Engineering
- Advanced Research in Information System Engineering
- Advanced Research in Information and Communication Engineering

Division of Mechanical Engineering

Mechanical Design
- Advanced Research in Functional Mechanical Design
- Advanced Research in Robotics

Fluid Dynamics
- Advanced Research in Viscous Fluid Mechanics

Materials Design System Engineering
- Advanced Research in Materials Design Engineering
- Advanced Research on Fracture Control System Engineering

Thermal Engineering
- Advanced Research on Reactive Gas Dynamics
- Advanced Research on Measuring Thermal Phenomena

Production Engineering
- Advanced Research on Production Management
- Advanced Research on Production Processing

Division of Civil, Architectural and Environmental Engineering

Structural Design
- Advanced Research in Structural System
- Advanced Research in Structural Materials
- Advanced Research in Space Structural Design

Geo-Environmental Design
- Advanced Research in Geotechnical Engineering
- Advanced Research in Environmental Science of the Ground

Atmospheric and Aquatic Environmental Design
- Advanced Research in Atmospheric Science
- Advanced Research in Environmental Engineering in River, Coast and Port

Urban Environmental Design
- Advanced Research in Regional Planning
- Advanced Research on Socio-Environment Design