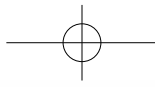


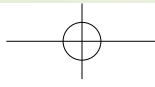
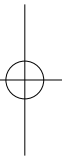
Bachelor's / Master's Program in Engineering

Civil and Environmental Engineering

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Bachelor's / Master's Program in Engineering
Civil and Environmental Engineering



1

Geotechnical Engineering Laboratory

Professor / TOYOTA Hirofumi Technical Staff / TAKADA Susumu

- ▣ Fundamental research on the ground which supports infrastructure
- ▣ Investigator of the ground
- ▣ Inquire the ground motion in millimeters



<https://geotech1.nagaokaut.ac.jp/>

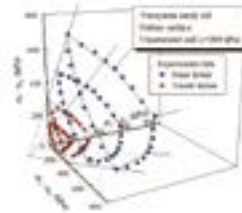
Supervisor TOYOTA Hirofumi

Professor Toyota excels in fundamental research on the ground mechanics and has published papers in international academic journals. Furthermore, as the leading person on the laboratory soil tests, the professor has chaired the committee to establish many JIS standards. Dr. Takada is a reliable person who solves the experimental troubles. The professor is always looking after his students not only for studying but also for everyday life.



Research Content

We are conducting research regarding the ground that supports our living infrastructure. Japan has limited narrow national land and has been suffered by many natural disasters. Therefore, it is necessary to use effectively the underground space and to form the resilient ground against natural disasters. In the response to these needs, we have contributed to provide the results based on fundamental study with taking advantage of University's strengths. In particular, we are conducting laboratory soil element tests on sand and clay, and model tests on liquefaction and ground vibration. We are striving to study hard to provide safe and secure in our everyday life.



Failure plane of unsaturated soil on three principal stress space

A Day in the Lab

Students in the laboratory are conducting experimental works to obtain new findings. Therefore, we use our time to prepare the samples for experiments, to check data, and to establish experimental programs. It sometimes takes long time to get the data from experiments. However, it is possible to use time effectively by making plan considering work-life balance. Consequently, we can also acquire a schedule management ability. Besides research, there are some events such as ball games, conference presentations, and watching fireworks. In these events, all students in the laboratory are working together and enjoying themselves with full power!



Prepared triaxial apparatus for soil testing

Thesis Subjects

- ▶ (M) Effects of stepwise changed strain rate on stress-strain relationships of soils
- ▶ (M) Change of sand particle orientation induced by liquefaction using triaxial tests
- ▶ (M) Strain range dependence on shear modulus of anisotropically consolidated sand

Major employers of Graduates

The number of
PhD Graduates

13

- Ministry of Land, Infrastructure, Transport and Tourism
- Niigata Prefecture
- Japan Railway Construction, Transport and Technology Agency
- East Japan Railway Company
- Central Japan Railway Company
- Central Nippon Expressway Company Limited
- Kajima Co., Ltd.
- Shimizu Co., Ltd.
- Obayashi Co., Ltd.
- Nippon Koei Co., Ltd.

Writer : TSUKADA Chihiro, Civil and Environmental Engineering
(Niigata Prefectural Niitsu High School)

123

教員名

TOYOTA Hirofumi
TAKADA Susumu

キーワード

Soil mechanics
Soil dynamics
Liquefaction
Geo-disaster

2

Highway Engineering Laboratory

Professor / Osamu TAKAHASHI

□ Environmentally Friendly Technologies for Road Construction


<https://whs.nagaokaut.ac.jp/road-secretary/>

Supervisor Professor / Osamu TAKAHASHI

Professor TAKAHASHI is a hard working lecturer. He is passionate for everything he does, including lectures and hobbies. Our professor is always looking after us, not only guiding us in our research but also giving us advice when needed. He is also a healthy person who likes playing soccer and swimming in his free time.



Research Content

In this laboratory, there're two main approaches to research. The first is the development of new materials for asphalt pavements. This includes proposing a new combination of aggregates (stones, sand, etc.) and asphalt binders in order to have a better performance. Our second approach is focused on reclaimed materials for road paving purposes. It's a common practice to use reclaimed materials, but the evaluation criteria and standards have not been decided yet. Therefore, we're studying effective evaluation methods and evaluation parameters. Our laboratory has these approaches to study pavement materials, which are such an important part of our daily lives.



Force ductility test: (a) asphalt binder specimens; (b) specimen being pulled apart; (c) fractured specimen

A Day in the Lab

In the Highway Engineering Laboratory, students present their experiment data and report on the progress of their research at a meeting once every week. This is what we call a seminar. Those who conduct a research in our laboratory are hard at work preparing specimens and conducting experiments. All members of our laboratory are always willing to help each other with these activities. However, it is not all about working! We also hold various events, such as trips to other prefectures and barbeques with graduate students.



Laboratory members at Nikko National Park

Thesis Subjects

- ▶ (M) Experimental study on use of rejuvenator and polymer for recycling heavily aged asphalt binders.
- ▶ (M) Study on effective utilization of non-standard reclaimed asphalt pavement for recycled asphalt mixtures.
- ▶ (M) Study on practical production of recycled asphalt mixtures using high content non-standard reclaimed asphalt pavement.
- ▶ (M) Study on rejuvenation of aged asphalt binder based on force ductility test.

Major employers of Graduates

The number of PhD Graduates

9

- NIPPO Corporation
- Taisei Rotec Corporation
- Taisei Corporation
- Nippon Road
- Niigata Prefectural Offices

- NEXCO
- Nichireki
- Toda Corporation
- Maeda Road Construction
- JR East

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Writer : Minh Hung NGUYEN, Civil and Environmental Engineering
(Ho Chi Minh city University of Technology)

教員名

TAKAHASHI Osamu

キーワード

Asphalt mixture design
Asphalt pavement
Reclaimed asphalt pavement (RAP)
Recycled mixture

3

Urban Planning Laboratory

Associate Professor / MATSUKAWA Toshiya



- ▣ No development without planning.
- ▣ Sustainable Community
- ▣ Study hard and play hard.


<https://nagaokautpl.wixsite.com/toshikeikaku>

Supervisor Associate Professor / MATSUKAWA

We are engaging in research under Associate Professor Matsukawa. Dr. Matsukawa is well informed about how to control of development in the outside of Urbanization Promotion Area. In our seminar, we are able to discuss each theme from variety of angles.



Research Content

In Japan, a local city such as Nagaoka has been developed in the suburban area and the rural area. Meanwhile, the local city's central area has declined. Therefore, we study how to vitalize central area and to control land use in suburban area. For instance, we examined the method of designating new City Planning Area in the local city which had never had an effective land use control system. There were the technical and practical problems, so we cooperated with the municipal officers and discussed those problems with them.



The filed work of undergraduate student program (May 2015)

A Day in the Lab

There is not a core time in our laboratory because this is urban "planning" laboratory. We have need to plan and work each theme ourselves.

There are various tasks: reading and sorting related documents, analyzing land use by GIS software, and interview with inhabitants or municipal officers. Students make presentation of own study at weekly meeting. Moreover, we have the joint seminar with other universities every year.

Finally, our slogan is "Study hard and play hard.", so we have a number of events all year round.



The joint seminar with other universities (November 2018)

Thesis Subjects

- ▶ (M) Comparison of Population Density in the Residential Promotion Area as Evaluation Index of Urban Facility Location Plan and the Actual Density Structure in the Urban Area
- ▶ (M) Study on the Transition and Problems of Suburban Housing Estates composing Detached Urbanization Promotion Area
- ▶ (D) Factors of Difference in Population Density of Urbanization Promotion Area from the Standpoint of Area Division Application and Urbanization Process in Local Cities

Major employers of Graduates

The number of PhD Graduates

7

- Niigata Prefecture
- Joetsu City
- Nagaoka City
- Osaka City
- Takasaki City

- Fukuda Corporation
- Oriental Consultants Co., Ltd.
- Pacific Consultants Co., LTD.
- Chiyoda ENGINEERING CONSULTANTS CO., LTD.
- Eight-Japan Engineering Consultants Inc.

Writer : Yamanaka Shota, Civil and Environmental Engineering
(Tochigi Prefectural Sano High School)

125

教員名

MATSUKAWA Toshiya

キーワード

Urban Planning
Local City
Land Use
Geographic Information System

4

Steel Structure Laboratory

Professor / IWASAKI Eiji Associate Professor / MIYASHITA Takeshi

- ▣ Maintenance of bridges to support the future of society
- ▣ Work that Remains on the Map
- ▣ Laboratory with a friendly atmosphere


<https://whs.nagaokaut.ac.jp/struct/>

Supervisor Professor / IWASAKI Eiji, Associate Professor / MIYASHITA Takeshi

Mr. Iwasaki is involved in redundancy assessment of steel structures, load carrying capacity of existing structures, and deterioration of steel structures by corrosion.

Mr. Miyashita is engaged in structural health monitoring. And he develop new technologies for the construction of bridges with Ministry of Land, Infrastructure, Transport and Tourism.



Research Content

In our laboratory, we have conducted research on steel bridges. Steel bridges have various types of structures and have different characteristics and properties. Our research activities include analysis of the behaviors that occur due to those difference, finite element analysis using DIANA, investigation of bridge corrosion using weathering steel, investigation of the effects of CFRP (Carbon Fiber Reinforced Plastics) on bridge repair and reinforcement, and structural health monitoring for bridge maintenance and management. We will continue to conduct research on the following topics.



CFRP construction

A Day in the Lab

In the steel structure laboratory, we don't have core hours, and we carry out structural analysis and experiments based on our own research themes. However, it does not mean that we do research all day long, but we sometimes chat so there is a loose side to us. In addition, many members like to enjoy events such as inter-laboratory games and Nagaoka fireworks, and we are a congenial laboratory where people are willing to enjoy university life while doing research. Another feature is that many international students are enrolled in our laboratory, and we can train our English skills while experiencing various cultures of the world.



Practice for presentation of graduation research

Thesis Subjects

- ▶ (M) ANALYTICAL STUDY ON THE STEEL MEMBER WITH CFRP ADHESIVELY-LAMINATED
- ▶ (M) Study on Beam-to-column Connections of Steel Rigid-frame Piers Using High Performance Steel
- ▶ (M) Stress characteristics of steel I girder with corroded thinning

Major employers of Graduates

The number of PhD Graduates

11

- KAWADA INDUSTRIES
- NIPPON KOEI
- Docon
- TOKYU CONSTRUCTION
- NIPPON ENGINEERING CONSULTANTS
- Yokogawa Bridge Holdings
- Yachiyo Engineering
- Oriental Consultants
- East Nippon Expressway Company Limited
- West Nippon Expressway Company Limited

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Writer : KOBAYASHI Takao, Civil and Environmental Engineering
(National Institute of Technology, Kisarazu College)

教員名

IWASAKI Eiji
MIYASHITA Takeshi

キーワード

bridge
steel construction
maintenance and management
Structural Analysis

5

CONCRETE LABORATORY

Professor / Takumi SHIMOMURA Associate Professor / Fuminori NAKAMURA
 Technical Staff / Takayuki YAMAGUCHI

- ▶ Let's Learn Concrete !
- ▶ Let's Mix Concrete !
- ▶ For Our Future



<https://whs.nagaokaut.ac.jp/concretelab/>

Supervisor Professor / Takumi SHIMOMURA, Associate Professor / Fuminori NAKAMURA, Technical Staff / Takayuki YAMAGUCHI

Prof. Shimomura and Nakamura guide us in our investigations and Mr. Yamaguchi provide us support in our experimental works. Our professors teach us the importance of a rational logical thinking through



Research Content

In our lab, in order to propose how to maintain effectively the concrete structures, we work with experimental and analytical calculations. The group of professor Shimomura investigate about concrete structures and its materials field such as changing strength of resin concrete and the practical application of prestressed concrete structure using stainless steel for all steel materials to design and maintenance.

The group of professor Nakamura investigate about the complex fields of concrete and aerodynamics such as the influence of wind and waves in predicting transportation of airborne salt & storm surge propagation phenomena.



Loading Test of Prestressed Concrete Beam

A Day in the Lab

While we are constantly planning and working in our schedules for experiments and numerical calculations, we keep our communication with the professor through daily morning meetings and weekly seminars. Also in our laboratory, we carry out our experimental works as a team, putting away our differences and receiving constant support from our senior and junior classmates. Within this, we have a lot of fun times bounding our partnership and friendship, and we look forward to have join and be a part of our team.



Graduation ceremony

Thesis Subjects

- ▶ (M) Research on the practical application of prestressed concrete structure using stainless steel for all steel materials
- ▶ (M) Examination of deformation of resin concrete and change in strength characteristics over time
- ▶ (M) Construction of mass balance model of structure surface for high accuracy of salt damage deterioration prediction

Major employers of Graduates

The number of
PhD Graduates

10

- SHIMIZU CORPORATION
- TAISEI CORPORATION
- KAJIMA CORPORATION
- NEXCO WEST
- NEXCO EAST
- EAST JAPAN RAIL COMPANY
- TAIHEIYO CEMENT CORPORATIN
- NIPPON ENGINEERING CONSULTANTS CO.,LTD.
- NIPPON TELEGRAPH AND TELEPHONE
- NATIONAL INSTITUTE OF TECHNOLOGY, GIFU COLLEGE

Writer : Eiki SHINOCHI, Civil and Environmental Engineering
 (National Institute of Technology, Fukui College)

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教員名

SHIMOMURA Takumi
 NAKAMURA Fuminori
 YAMAGUCHI Takayuki

キーワード

Civil Material
 Concrete Structure
 Concruction Management
 Structual Maintenance

Mechanical

Electrical

Management

Materials

Civil

Nuclear Technology

System Safety

Innovation

6

Urban Transport Engineering and Planning Laboratory

Professor / Kazushi SANO Assistant Professor / Takao TAKAHASHI
Assistant Professor / Teppei KATO

- ▶ Motivative research life
- ▶ "Play when you play"_ "Research when you study"
- ▶ International interaction and exchange culture



https://cee.nagaokaut.ac.jp/urban_transportation/

Supervisor Prof. Kazushi SANO / Asst. Prof. Teppei KATO

*Prof. Sano is a pioneering professor in the transportation studies domain with a multidisciplinary research interest. He is an excellent advisor and has got a keen insight into the cutting edge of research in the transportation domain, which always encourages the students to quality and novel research outcomes. Prof. Sano has a very enthusiastic and humble personality, as he is always delighted to spend his leisure time with his students with full of enjoyment.
Asst. Prof. Kato is a young enthusiastic, and professional researcher. His main research areas include traffic network analysis, cost-benefit analysis, and traffic flow theory. His dedication to students is what makes him a counselling supervisor.*

Research Content

The Urban Transport Engineering and Planning Laboratory creates an international environment with more than 30 students worldwide. Coming to our laboratory, you will have the chance to broaden your knowledge, research skills, and life experiences. We are encouraged to focus our research on leading urban transport topics such as traffic demand management, traffic planning, public transport development, supply chain management and transportation infrastructure management. We are given the opportunity to learn and master big data analytics, field survey and advanced simulation systems such as Paramics Microsimulation, JICA STRADA, Gurobi 9.0, SPSS, QGIS, PTV VISSIM 2019, AIMSUN 8.2 and so on. Our lab conducted many projects related to choice modelling for mass transit stations, traffic flow, traffic signal light cycle, the effect of snow on traffic safety, and traffic safety under severe weather.

A Day in the Lab

We have a colorful life in the research room. It is a life filled with research, learning and experiencing the diversity of cultures. We actively seek and explore new horizons of knowledge alongside our friends, under the guidance of dedicated professors. We have academic discussions and weekly progress reports. And, if you are the nature-loving person, you will discover many charming places nearby, from the street of cherry blossom, the field of tulip, lavender and to the hill of rose. As located in the most famous rice terrace in Japan, the surrounding landscape itself is a breathtaking scenery, especially in the winter season.

Thesis Subjects

- ▶ (M) A probabilistic model development to predict traffic accident tendency under snowy conditions for expressway
- ▶ (M) How Topology Changes Under Disruptive Conditions Affect Transportation System Resilience and Traffic Flow
- ▶ (D) Joint Discrete Choice Modeling of Integrated choice and latent variables model for Mass Transit Stations Area and Effect of Residential Self-selection from COVID-19 pandemic

Major employers of Graduates

- University of Bristol, United Kingdom
- Suranaree University of Technology, Thailand
- Ho Chi Minh City University of Technology, Vietnam
- University of Moratuwa, Sri Lanka
- Ho Chi Minh City University of Technology and Education, Vietnam
- Ministry of Road and Transport Development of Mongolia, Mongolia
- University of Transport and Communications, Vietnam
- Mongolian Custome General Administration, Mongolia
- Institute of Transport Science and Technology, Vietnam

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Writer : Thi Nhu Quynh PHAN, Civil and Environmental Engineering
(Ho Chi Minh City, Vietnam, Vietnam Aviation Academy)

教員名

SANO Kazushi
TAKAHASHI Takao
KATO Teppei

キーワード

Traffic simulation
Traffic and town development
Traffic network analysis
Transportation planning

【校正時ご確認をお願い致します】

□執筆皆様出身校の英語指示をお願い致します。

□研究室名を扉に合わせて「Hydraulic Engineering Laboratory」にしました。よろしかったでしょうか？

7

Hydraulic Engineering Laboratory

Professor / HOSOYAMADA Tokuzo Associate Professor / INUKAI Naoyuki
Technical Staff / YAMAMOTO Hiroshi

- ▶ Explore rivers and oceans !
- ▶ Experiment, numerical analysis, fieldwork, etc.
- ▶ Study at your own pace !



<http://coastal.nagaokaut.ac.jp/index.shtml>

Supervisor Professor / HOSOYAMADA Tokuzo, Associate Professor / INUKAI Naoyuki

The professors in this laboratory respect the personal independence, support our research activities and encourage our job hunting. Prof.Hosoyamada has a hidden aspect, such as playing guitars and Prof. Inukai has a fun for car diving.

Research Content

In our Laboratory, we put our efforts into hydraulic phenomena. For example, Flooding, Density current at river mouth, Sandbar, River flow in the field of river engineering and Tsunami, Rip current, Nearshore currents, Swash oscillation in the field of coastal engineering. Research methods are numerical simulation, laboratory experiments, field survey and mathematical theory. In recent years, the statistical model and machine learning model are used as well as physical model. We recommend this laboratory for those who are interested in Information processing technology as well as traditional research methods.



PC to be used to calculation

A Day in the Lab

Our laboratory proceed to work in numerical calculation in PC operation room, Laboratory Experiment room and Large Experiment building. We come to the laboratory at free time almost everyday because our laboratory doesn't have hours on duty like a "Core Time". Seminars will be held for each academic advisor. It not only research progress report, but also study session, which is an opportunity to actively incorporate new knowledge and technologies.



Circulation open Channel (We can research Flow Velocity or Back Water)

Thesis Subjects

- ▶ (M) Hydraulic characteristics in flood control measures for small and medium-sized urban rivers
- ▶ (M) Review of Offshore wind power generation arrangement position for Murakami City and Tainai City
- ▶ (M) The effect for downstream rivers due to the release of the dam

Major employers of Graduates

The number of
PhD Graduates

7

- ▶ Pacific Consultants
- ▶ Shimizu Corporation
- ▶ Penta Ocean Construction
- ▶ CTI Engineering Co.,Ltd
- ▶ East Japan Railway Company
- ▶ Central Japan Railway Company
- ▶ TOKEN C.E.E Consultants Co.,Ltd
- ▶ Construction Consultant Echo Co., Ltd.
- ▶ Niigata Prefectural Government
- ▶ Chiba Prefectural Government

Writer : SUGIMOTO Takumi, Civil and Environmental Engineering
(新潟県中央工業高等学校)

129

教員名

HOSOYAMADA Tokuzo
INUKAI Naoyuki
YAMAMOTO Hiroshi

キーワード

fluid mechanics
hydraulics
coastal engineering
river engineering

8

Environment Disaster Prevention Laboratory

Professor / Satoru OHTSUKA Associate Professor / Yutaka FUKUMOTO

- ▶ Research on leading environment disaster countermeasures
- ▶ Comprehending the essential concepts of Civil and Environmental Engineering
- ▶ Maintaining a balance between research and extracurriculars



<https://whs.nagaokaut.ac.jp/edpl/>

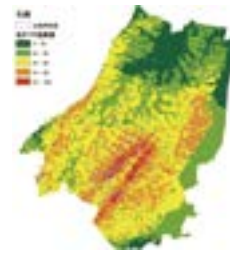
Supervisor Professor / Satoru OHTSUKA , Associate Professor / Yutaka FUKUMOTO

Both professors are very friendly and welcoming. They always enlighten the students based on academic principles and engineering best practices. Further, they help and encourage students to develop a sound engineering understanding of natural phenomena. Moreover, our professors strongly believe in freedom of expression and therefore give due importance to the students' opinions on research matters, which leads to healthy technical discussions.



Research Content

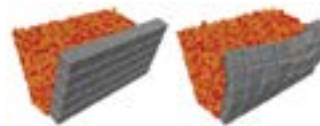
The environment disaster prevention laboratory is aimed at conducting research to solve the latest engineering challenges to prevent the catastrophic outcome of natural disasters such as earthquakes and rainstorms. Model tests and field studies are conducted to investigate the effective liquefaction countermeasures. Wide area risk assessment methodology for slopes is conducted with GIS and AI technologies against earthquakes and rainstorms (see the right figure). Moreover, stability analysis of footings is also part of the research theme. In addition, we develop particle-based numerical simulation models to reproduce the complex soil behaviors such as the deformation of sand, the internal erosion of soil and weathering of mudstone.



Wide area slope failure risk assessment

A Day in the Lab

Everyday in this lab is full of energy and opportunities. Students carry out their designated research activities and report its progress to the professors. Weekly group and individual seminars are conducted to keep pace with the annual research targets. All students put their best efforts into achieving their intended research goals. Preparing for the seminars is quite demanding; however, as you come to the laboratory, you feel motivated as there are colleagues who work hard along with you. Besides, Nagaoka is a peaceful city and there are activities round the year to make you feel lively such as Nagaoka fireworks.



Large deformation analysis of ground and soil structures by particle simulation

Thesis Subjects

- ▶ (M) Development of Wide-Area Hazard Assessment for Slope by Combining Machine Learning and Image Recognition
- ▶ (M) Laboratory and Field Tests on the Compaction Effect of Gravel Piles on Sandy Soil
- ▶ (M) Advanced Measurement of Three Dimensional Velocity Components of Seepage Flow in the Soil Using Refractive Index Matching Scanning
- ▶ (M) Numerical Modeling of Fracture Behavior of Geomaterials Based on PerDynamics-DEM

Major employers of Graduates

The number of
PhD Graduates

8

- Fujita Corporation
- Obayashi Corporation
- Japan Railways
- Penta-Ocean Construction
- Sakami Tetsudo
- Shimizu Corporation
- Taisei Corporation
- Sumitomo Mitsui Construction
- Fukken Engineering
- Fudo Tetra Corporation

130

Writer : Tahir Iqbal, Integrated Bioscience and Technology
(Nagaoka University of Technology)

教員名

OHTSUKA Satoru
FUKUMOTO Yutaka

キーワード

Environment disaster
Disaster prevention
Civil engineering
Environmental engineering

【校正時ご確認をお願い致します】

□執筆者様出身校の英語指示をお願い致します。

9

Laboratory of Disaster Resilience and Reconstruction Systems Engineering

Associate Professor / TAKAHASHI Kazuyoshi

Associate Professor / MATSUDA Yoko Research Assistant / SAKATA Kenta

- ▶ Advancement of land resilience due to remote sensing.
- ▶ Analysing and using digital information.
- ▶ Designing co-learning process for resilient communities.


<https://rspr.nagaokaut.ac.jp/en/>

Supervisor Associate Professor / Kazuyoshi TAKAHASHI, Associate Professor / Yoko MATSUDA

Prof. Takahashi and Mr. Sakata carry out research on remote sensing, and Prof. Matsuda works on community-based disaster risk communication. Our lab has a lot of opportunities for fieldworks, and all teachers are young active and energetic! !



Research Content

Remote sensing group develops methodology to use aerial or satellite photos and 3D point clouds data for the purpose of agricultural yield survey and disaster prevention.

Disaster prevention group conducts research at local fields to develop disaster-resilient communities. Currently they design co-learning process with residents from local water level meters in a small-sized river.



A Day in the Lab

There is no core time in the remote sensing group, so there are seminars of progress reporting several times a week while conducting research at your own pace. Some students go fieldwork with UAVs LIDAR.

In disaster prevention group, students learn a basic statistics to analyze social surveys, and many of them go out for fieldwork to work with community residents. We have a lot of fun opportunities such as welcome parties, fireworks watching and okonomiyaki parties



Thesis Subjects

- ▶ (M) Research on high accuracy of paddy rice growth index estimation by UAV-LiDAR measurement
- ▶ (M) Detection collapse areas by transition learning using images before and after disaster
- ▶ (M) Research on river level and rainfall displays based on usability evaluation

Major employers of Graduates

The number of
PhD Graduates

1

- East Japan Railway (JR East)
- East Nippon Expressway (NEXCO East Japan)
- Tohoku Electric Power
- Chiyoda Engineering Consultants
- Fukken Gijyutsu Consultants
- TOKEN C.E.E Consultants
- SPACE ENGINEERING DEVELOPMENT
- PASCO
- NAKANIHON AIR
- Japan Coast Guard

Writer : Tetsuya KANAGAWA, Civil and Environmental Engineering
(新潟市立高志中等教育学校)

131

教員名

TAKAHASHI Kazuyoshi
MATSUDA Yoko
SAKATA Kenta

キーワード

Deep learning
UAV
Disaster risk communication
Community-based



10

Earthquake Engineering Laboratory

Professor / Takaaki IKEDA

- ▶ Learn about earthquakes!
- ▶ Have a well-balanced student life!
- ▶ Get to know the real thing on the spot!



<https://whs.nagaokaut.ac.jp/gee-l/>

Supervisor Professor / Takaaki IKEDA

Mr. Ikeda is an amiable teacher because he is close to the students. He has a tough and sometimes gentle side. He values communication with students, and He is kind to research and regular student life and employment counseling.



Mechanical

Electrical

Management

Materials

Civil

Nuclear Technology

System Safety

Innovation

Research Content

In Japan, the risk of earthquakes is high, and large-scale earthquakes may occur in the future. However, earthquakes cannot be prevented in advance. Therefore, by investigating the damage caused by earthquakes in the past, it is possible to reduce earthquake disasters. It can be helpful.

In our laboratory, we go to the area where the earthquake damage occurred, conduct a field survey, and conduct research using the data obtained there. In addition, since field surveys are undertaken not only in Japan but also overseas, you can gain a wide range of knowledge and experience.



3rd collaborated research seminar with Takase Laboratory

A Day in the Lab

Our laboratory is an independent laboratory. Seniors and juniors are close to each other, and you can feel free to ask questions and discuss research.

In addition, two seminars are mainly held in our laboratory. All the members check the schedule and report on their progress while enjoying tea and sweets while holding a Teatime seminar. The other is a seminar in each grade. Students take the initiative to conduct research-related journals, study sessions to learn analysis and GIS software, and practice research presentations.



Teatime seminar

Thesis Subjects



Major employers of Graduates

The number of
PhD Graduates

0

- Yamagata Kensetsu Co.,LTD
- Tokyu Construction
- Okumura Corporation
- Ministry of Land, Infrastructure, Transport and Tourism
- Tokyo Fabric Industry
- East Japan Railway Company
- Takasaki City
- Aomori City

132

Writer : Pham Quoc Du, Civil and Environmental Engineering
(Hanoi Architectural University)

教員名

IKEDA Takaaki

キーワード

Earthquake
Disaster prevention
Hazard map
Seismic motion prediction

11

Radioactive Environmental Dynamics Engineering Laboratory

Associate Professor / Tomoko OHTA



- ▶ Make a radioisotope-scale clock using dating!
- ▶ Know the risk of future earthquakes!
- ▶ Let's face the voice of the earth in nature!

Supervisor Associate Professor / Tomoko OHTA

Ohta-sensei is a very kind teacher. She is a student-minded teacher who is kind enough to ask basic questions and give advice on her usual student life and employment. She loves animals, and her dog, Shiba Inu, Mikan-chan, has become an idol in our laboratory. In fact, martial arts are one of the special skills.



Research Content

We aim to contribute to issues such as water resource conservation / development and radioactive waste disposal by conducting groundwater dating development and future prediction of nuclides in the environment.

- 1) Water resource conservation and development
We are developing a groundwater dating method for groundwater flow evaluation, which is the key to water resource development and safety evaluation of radioactive waste disposal.
- 2) Radioactive waste disposal
We are elucidating the dynamics of nuclides in forests and groundwater through research on the circulation of anthropogenic pollutants and the prediction of their distribution in the environment.



Fieldwork
(Collection of groundwater for snow-melting pipes)

A Day in the Lab

There is no core time. You can proceed with your research freely. We also go to field work for groundwater sampling and forests in various places. We receive samples from nature, chemically separate the nuclides in the samples in the laboratory and measure them to face the voice of the earth every day.

The seminar introduces papers and reads textbooks once a week in collaboration with the Laboratory for Nuclear and Radiochemistry and the Nuclear Materials and Conservation Engineering Laboratory. In addition, the student room is also combined with these laboratories, and it looks like a large laboratory.



Student room

Thesis Subjects

- ▶ (M) Impact of geographic conditions on groundwater radon concentration

Major employers of Graduates

- No data due to newly established laboratory

The number of PhD Graduates

0

Writer : Ryo Takeo, Nuclear System Safety Engineering
(National Institute of Technology, Kisarazu College)

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教員名
OHTA Tomoko

キーワード
Environmental Radioactivity
Groundwater dating
Hydrology
Fieldwork

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Aqua and Soil Environment Laboratory

Professor / Takashi YAMAGUCHI Associate Professor / Masashi HATAMOTO
Assistant Professor / Takahiro WATARI Technical Staff / Takako WATANABE

- ▶ Cost-Saving and Energy-Recovering Water Treatment Technologies
- ▶ Novel Molecular Microbiological Techniques for Microbial Ecosystem Analysis
- ▶ Innovative ideas for global environmental issues



<https://www.ecolabnagaokaut.com/>

Supervisor Professor / Takashi YAMAGUCHI

Our professor is a dedicated teacher and also a great companion who is willing to give us sincere suggestions so that we can overcome the problems encountered. Besides, as an understanding person, he encourages us with warm words and is ready to give us opportunities to make our wishes come true. For us, he is a great guide.



Research Content

Drawing on the potential strength of the microbial communities, we develop environmentally friendly and cost-saving innovative wastewater and waste treatment systems, which are then be piloted on a large scale for industrial application. Besides, with sophisticated and advanced molecular microbiology techniques, we conduct a series of in-depth studies on the microorganism (e.g., analyzing microbial community, isolating, and culturing uncultured microorganisms, or clarifying species interactions). Recently, pioneering hydrosphere soil environmental control technologies are becoming a new research direction of our lab with studies involving agricultural biomass recycle, water reclamation systems implementation for terrestrial aquaculture, or plant diseases treatment by biological methods.



A lab member performing a TOC measurement of wastewater

A Day in the Lab

Overall, we work on the spirit of independence, self-discipline, and creativity. In other words, we are always motivated to work towards goals but based on self-time management. Besides, thanks to a dense network of cooperation with many institutions, universities, and companies in Japan and abroad, lab members have many opportunities to attend domestic and international conferences or job fairs to keep up with novel waste treatment technologies and expand career opportunities. Outside of research, many parties and extracurricular activities are organized to make the relationship among laboratory members close-knit.



A group photo taken at the 2021 graduation ceremony

Thesis Subjects

- ▶ (M) Isolation, cultivation, and characterization of MBR biofilm-forming bacteria by in-situ cultivation
- ▶ (M) Development of a plant disease control method using soil microorganisms
- ▶ (D) Development of bioreactors for methane-driven nitrogen removal in anaerobic wastewater treatment

Major employers of Graduates

The number of
PhD Graduates

47

- Taisei Cooperation
- Kubota Cooperation
- Sanki Engineering
- Organo Cooperation
- Meidensha Cooperation
- Nihon Suido Consultants
- JGC Plant Innovation
- Hitachi Zosen Cooperation
- Nippon Jogesuido Sekkei
- Kurita Water Industries

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Writer : NGUYEN THU HUONG, Science of Technology Innovation
(Hanoi University of Science and Technology)

教員名

YAMAGUCHI Takashi
HATAMOTO Masashi
WATARI Takahiro
WATANABE Takako

キーワード

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Laboratory of Resource and Energy Cycles

Associate Professor / KOMATSU Toshiya Associate Professor / HIMENO Shuji

- ▶ Build a society based on resource and energy cycle technologies.
- ▶ Research with a focus on practical applications.
- ▶ Investigate and satisfy the needs of society through technology development.



<http://whs.nagaokaut.ac.jp/reclab/>

Supervisor Associate Professor / KOMATSU Toshiya and Associate Professor / HIMENO Shuji

Prof. Komatsu focuses on the research involving anaerobic digestion and water treatment, where Prof. Himeno accurately aims and engages several environmental issues through research with the cooperation of other companies and associations. Both professors positively instruct and discuss with their pupils to provide them support for their respective investigations.



Research Content

In our laboratory, we are developing technologies that take advantage of local properties of the sewerage structure of Niigata Prefecture, under the theme of "Building a Resource-Energy Recycling Society", based on the recovery and utilization of unused resources obtained from the sewage systems to generate energy. In addition, we also cover other themes like methane fermentation using biomass, the pretreatment of sludge using ozone, harvest of plants managing sewerage systems, removal of harmful metals deposited on roads using porous concrete, and the development of zeolite membranes and MOF technologies for green gas mixtures separation and storage.



Demonstration of the sewerage system for plant harvesting.

A Day in the Lab

Each of our laboratory's different areas conduct experiments at the campus installations or/and sewerage treatment plants. We also participate in various events throughout the year such as harvesting rice, maintenance of facilities used for our research, or exhibiting about our research/themes in the Nagaoka Festival. Thanks to these events we have the opportunity to interact with people outside the university which are part of important companies, acquiring the needed knowledge and skills for the future laboral life like formality for business conversations, e-mailing and other aspects.



Exhibition of a snow-melting pipe at the Nagaoka Festival.

Thesis Subjects

- ▶ (M) Solubilization of excess sludge by ozone treatment and increased production of biogas.
- ▶ (M) Construction of a plant harvest environmet utilizing sewer unused resources.
- ▶ (D) Purification of greenhouse gasses through its separation using zeolite membranes (DDR type zeolite)

The number of
PhD Graduates

2

Major employers of Graduates

- Nihon Suido Consultants Co., Ltd
- NJS Co., Ltd.
- OHARA Corporation
- Sanki Engineering Co., Ltd.
- Kyowa Exeo Corporation
- Mitsubishi Electric Corporation
- Takasago Thermal Engineering Co., Ltd
- Maezawa Industries, Inc.
- Sumitomo Rubber Industries, Ltd.
- TOSHIBA HOME TECHNOLOGY CORPORATION

Writer : Sanchez Lopez Alejandro, Civil and Environmental Engineering
(Instituto Regiomontano Unidad Chepevera)

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教員名

KOMATSU Toshiya
HIMENO Shuji

キーワード

Biogas production
Porous concrete for the environment
Harvest environment technologies
Zeolite membrane technologies

