

# **Tokyo University of Agriculture and Technology Graduate School of Engineering**

**Doctoral Course (Doctor)**

**Application Forms and Guide**

**For October 2015 / April 2016 Enrollment**

**Tokyo University of Agriculture and Technology**

# Tokyo University of Agriculture and Technology Graduate School of Engineering

## Doctoral Course Application Forms and Guide for October 2015 / April 2016 Enrollment

The Graduate School of Engineering consists of a Master's course and a Doctoral Division. The following application guide and forms are intended for the Doctoral Division.

### 1. Application Quota

Department	Number of applicants to be accepted			
	October 2015 Enrollment (Examination) August 17 (Mon), 2015	April 2016 Enrollment		
		First Recruitment (Examination) August 17 (Mon), 2015	Secondary Recruitment (Examination) January 7 (Thu), 2016	Tertiary Recruitment (Examination) March 8 (Tue), 2016
Biotechnology and Life Science	Several	14(1) <4>	Several	Several
Applied Chemistry	Several	14(1)	Several	Several
Mechanical Systems Engineering	Several	13(1)	Several	Several
Electronic and Information Engineering	Several	19(1)	Several	Several
Total	Several	60(4) <4>	Several	Several

※( ) indicates the number of collaborative study fields in Number of applicants to be accepted.

< > indicates the number of brush-up education for society in Number of applicants to be accepted.

### 2. Admission Requirements

Applicants must meet any of the following items:

(in the case of October 2015 Enrollment, read in [ ])

- (1) Applicants must either have a master's degree or an equivalent degree in a specialized field, or expect to acquire the degree by the end of March 2016. [September 2015.]
- (2) Applicants must either have acquired a master's degree or an equivalent degree in a specialized field overseas, or expect to acquire the degree by the end of March 2016. [September 2015.]
- (3) Applicants must have studied in Japan the required subjects for distance learning set by a foreign school and expect to acquire a master's degree or an equivalent degree in a specialized field by the end of March 2016. [September 2015.]
- (4) Applicants must have finished an academic course set by the Minister of Education, Culture, Sports, Science and Technology at an educational institute in Japan that provides courses offered by a foreign graduate school that functions under the educational system of a foreign country, and must have acquired a master's degree or an equivalent degree in a specialized field.
- (5) Applicants must hold or expect to obtain a Master degree or equivalent by the end of March 2016, [September 2015.] through course completion at the United Nations University (hereinafter referred to as UNU) as prescribe in Article 1 ② of the Act on Special Measures Incidental to Enforcement of the Agreement between the United Nations and Japan regarding the Headquarters of the United Nations University (Act No.72 of 1976), which was established under the December 11, 1972 resolution of the General Assembly of the United Nations.
- (6) Those who have completed an education course at a foreign school (at educational institutions that have been designated as qualifying for admission), (4) or those who have attended the United Nations University and passed an examination that is equivalent to the Examination of Doctoral Thesis Study Basic Ability, or those who are expected to pass the examination and are recognized as having academic ability that is considered equal to or greater than that of an applicant who holds a master's degree shall be deemed qualified. (Examination of Doctoral Thesis Study Basic Ability)
  - i) Examination to evaluate the applicant's advanced professional knowledge and ability in the major subject and basic knowledge in fields that are related to the major subject, which the candidate has learned or intends to develop in the first course.
  - ii) Examination to evaluate the applicant's ability to autonomously conduct research related to the doctoral thesis and to that which will be learned in the first course.

(7) Applicants are specified by the Minister of Education, Culture, Sports, Science and Technology.

An applicant who is specified by the Minister of Education, Culture, Sports, Science and Technology shall be someone who “has graduated from university or has obtained 16 years of education overseas, has conducted over 2 years of research work at a university or research institute, and whose research has led to the acquisition of a postgraduate’s degree or an equivalent degree in a specialized field.

(8) Applicants must have been recognized for having academic ability equivalent to a postgraduate’s degree or a specialized field through individual admission screening, and must be 24 years of age at the time of 1 April 2016. [1 October 2015]

\*Preliminary screening will be conducted for applicants applying as either (7) or (8) of admission qualification. (See *The Approval of Admission Qualifications (7) & (8).*)

### 3. Selection Schedule

	2015 October Enrollment	2016 April Enrollment		
		First Recruitment	Secondary Recruitment	Tertiary Recruitment
Application deadline of admission qualification approval	June 22 (Mon), 2015 - June 26(Fri), 2015	June 22 (Mon), 2015- June 26 (Fri), 2015	November 30 (Mon),2015 - December 2 (Wed), 2015	February 15 (Mon), 2016 - February 16(Tue), 2016
Approval examination	July 7 (Tue), 2015	July 7 (Tue), 2015	December 7 (Mon), 2015	February 19 (Fri), 2016
Announcement of approval result	July 9 (Thu), 2015	July 9 (Thu), 2015	December 9 (Wed), 2015	February 23 (Tue), 2016
Application deadline	July 13 (Mon), 2015- July 17 (Fri), 2015	July 13 (Mon), 2015- July 17 (Fri), 2015	December 14 (Mon), 2015- December 18 (Fri), 2015	March 1 (Tue) 2016 - March 3 (Wed) , 2016
Examination	August 17 (Mon), 2015	August 17 (Mon), 2015	January 7 (Thu), 2016	March 8 (Tue), 2016
Announcement of successful applicants	September 4 (Fri), 2015, 1:30 pm	September 4 (Fri), 2015, 1:30 pm	January 19 (Tue), 2016, 1:30pm	March 22 (Tue), 2016, 1:30pm
Admission procedure	September 10 (Thu), 2015	March 15 (Tue),2016	March 15 (Tue),2016	March 28 (Mon), 2016

### 4. Application Deadline

See 3. *Selection Schedule*.

Posted applications must be received by the last day of the deadline.

### 5. Application Procedure

See 6. *Selection Procedures* before applying and submit the required documents either in person at the Admissions Office or by post before the deadline.

Contact information for application submission and inquiries:

Admissions Section, Koganei Student Support Office,  
Tokyo University of Agriculture and Technology  
2-24-16 Naka-cho, Koganei-shi, Tokyo 184-8588  
TEL: 042-388-7014  
Office hour: 8:30am-12:00pm, 1pm-5:15pm

## 6. Selection Procedures

The selection of successful applicants will be conducted comprehensively through academic achievement test and screening of documents.

### (1) List of documents to be submitted

Documents for application		Important notes
A	Admission Voucher (use provided form)	Before filling in the section <i>Proposed Research Title</i> , ensure to follow guidance of your preferred supervisor and have him/her approval seal in the section <i>Preferred Supervisor</i> . <i>Fill in the section Preferred Supervisor with the name of staff except for ones marked ※1. About supervisor marked ※2 make sure to contact the Admissions Section, Koganei Student Support Office.</i>
B	Photograph Voucher / Examination Voucher (use provided form)	An ID picture, showing you without any headwear, and taken within 3 months prior to application (4cm x 3cm) must be adhered where designated.
C	Certificate of (expected) completion of course	You must submit a certificate of (expected) postgraduate's degree or master's degree issued by the graduate school you attended (are attending). This applies even if you have graduated or expect to graduate from our Graduate School of Engineering. Applicants with qualification (6) are required to submit documents relating to the examination confirmed that corresponds to the basic skills examination doctoral dissertation. However, submission of this certificate is not required from applicants meeting admission qualification (7) or (8).
D	Certificate of graduate school academic achievements	Issued by the graduate school you attended. This applies even if you are belonging to our Graduate School of Engineering. However, submission of this certificate is not required from applicants meeting admission qualification (7) or (8).
E	Outline of Master's Thesis (use provided form)	An outline of your master thesis within 2,000 Japanese characters (500 English words) should be submitted if you have completed a master course. In addition, provide separated prints or copies of any published articles related to your postgraduate's thesis, if available. However, this is not required if you are still enrolled in your master course or meeting admission qualification (7) or (8).
F	Research Proposal (use provided form)	The proposal for the Doctoral research should be within 500 English words and ensure you obtain the confirmation of your preferred supervisor.
G	Statement of Purpose (use provided form)	Clearly state your master thesis title, or the general outline of the research you are currently conducting (wish to conduct), as well as why you wish to apply for the course. (Not applicable for graduates, research and current students of our university, and applicants meeting requirement (7) or (8).
H	Return envelope	Applicable only if you submit the application by post. Use Japanese standard "Long No. 3" size envelope and adhere a 362 yen worth of stamp. Also ensure to provide your name, return address and postal code so we can send you your examination voucher and other documents.
I	Original Copy of Certificate of Residence	Non-Japanese applicants must submit a Certificate of Residence (detailing nationality, residential status, permitted period of stay and its expiration date). In addition, government-sponsored foreign student of the MEXT (Ministry of Education, Culture, Sports, Science and Technology) must also submit a certificate of guarantee of acceptance as Japanese government scholarship student which is issued by the university enrolled.
J	Entrance examination fee (paid using provided payment slip designated by our Graduate School)	30,000 yen. Obtain the designated payment slip for the entrance examination fee at the counter of the Koganei Student Support Office, make your payment at the post office or Japan Post Bank, receive the <i>Certificate of Transfer Payment Receipt</i> with the stamp of the branch and date, and attach it on the designated place of <i>Payment Confirmation Slip of Entrance Examination Fee</i> . In addition, ensure to keep the <i>Transfer Payment Invoice and Receipt Slip</i> safe, as it acts as the receipt of your payment. *As payment of the entrance examination fee will be confirmed with the stamp of branch and date of payment shown on the <i>Certificate of Transfer Payment Receipt</i> , make your payment at a post office or Japan Post Bank only. (Payments are not accepted via ATM transaction.) If you are applying from outside of Japan, you are advised to consult with your preferred supervisor first. <u>However, the entrance examination fee payment is not required if you will have completed the master's course of our university in March 2015, or are supposed to get extension of Japanese government scholarship grant.</u>
K	Name & Address voucher (use provided form)	Fill in all necessary information. Should any information, such as your address, change after submitting your application, make sure to contact the Admissions Section, Koganei Student Support Office immediately.

(2) Academic Achievement Test

You will be tested upon your knowledge of the specialized field related to the outline of the postgraduate's thesis and research proposal you submitted, as well as your language skills.

## 7. Date and Place of Examination

(1) Date: See 3. *Selection Schedule*

(2) Place: Tokyo University of Agriculture and Technology, Koganei Campus

Further details concerning the place of examination will be given to you later.

## 8. Announcement of Successful Applicants

Date: See 3. *Selection Schedule*

The list of successful applicants will be shown on the notice board located on the first floor of the Main Building at the Koganei Campus. Successful candidates who are enrolled in our university will be provided the *Notice of Acceptance* in exchange for Examination Voucher at the reception desk. (Make sure to get it within 3 days (except Saturday, Sunday and National holidays) from the announcement date.) If you are not enrolled in our university, you will be informed by post of the outcome of your application.

## 9. Admission Procedure

(1) Date and place for your admission procedure

Date: See 3. *Selection Schedule*

Place: Tokyo University of Agriculture and Technology, Koganei Campus

Further details will be given to you later.

(2) Required fees upon admission and others

1) Admission fee — 282,000 yen

Not applicable to those who have completed the Master's Course at Graduate School of our university and who are proceeding on to the Doctoral Division, and government-sponsored foreign student.

2) Tuition fee — 535,800 yen [for the first and second semester: 267,900 yen]

Not applicable to government-sponsored foreign student.

Note: Payment of tuition fees is required after entrance.

The fees set above are current as of 2015, but may be subject to change before the date of admission procedure. In addition, should the tuition fee change during enrollment, the new fee will be applicable upon amendment.

3) Other required documents — Entrance Agreement (use provided form)

Working applicants who wish to enter the course while employed must submit the Entrance Agreement provided by such persons as the head of the department. Please note that in case you are unable to submit the agreement your admission may be revoked.

## 10. Important Notes

(1) Ensure to contact and obtain confirmation from your preferred supervisor before you apply.

(2) Ensure to bring along your Examination Voucher when you come for your academic achievement test.

(3) No part of any documents may be altered once application is submitted.

(4) Should you violate any part of this Application Forms and Guide and instructions given by the university, you may be denied of the examination.

(5) Confirmation concerning the entrance examination should be made at the *Contact information for application submission and inquiries*, as given on page 2.

(6) The examination fee is non-refundable, regardless of any reason.

(7) Applicants will be informed immediately if any changes concerning the examination occur.

(8) Once admitted, upon the submission by the applicants and depending on the systems of the exemption of admission/tuition fee and scholarship, your certificate of achievement which you submitted upon application and the result of your entrance examination may be used for consideration. Please rest assured that your private information, obtained upon your application, will be adequately treated according to our Privacy Policy (available on the university website).

## **The Approval of Admission Qualifications (7) & (8)**

Admission qualification approval will be conducted as follows to decide whether you are qualified for application for the Doctoral Course:

### **1. Submission of Application Documents**

Submission date: See 3. *Selection Schedule*

Submission time: 8:30 am – 12 pm, 1 pm – 5:15 pm

Submission place: Admissions Section, Koganei Student Support Office, Tokyo University of Agriculture and Technology (1F, Main Building, Koganei Campus)

### **2. Documents for Submission**

- (1) Admission Qualification Approval Application Form (use provided form)
- (2) Certificate of graduation from the last academic institution attended (issued by the school)
- (3) Certificate of achievements from the last academic institution attended (issued by the school).
- (4) A list of research achievements (use provided form) and separated prints of any articles published, etc.
- (5) Certificate of employment (enrollment) [free format (not applicable to applicants who have no employment history out of them who meet admission qualifications (7) or (8))]
- (6) Statement of Purpose (use provided form)

### **3. Approval Examination**

See 3. *Selection Schedule*. Details will be given upon application procedures.

### **4. Approval Result**

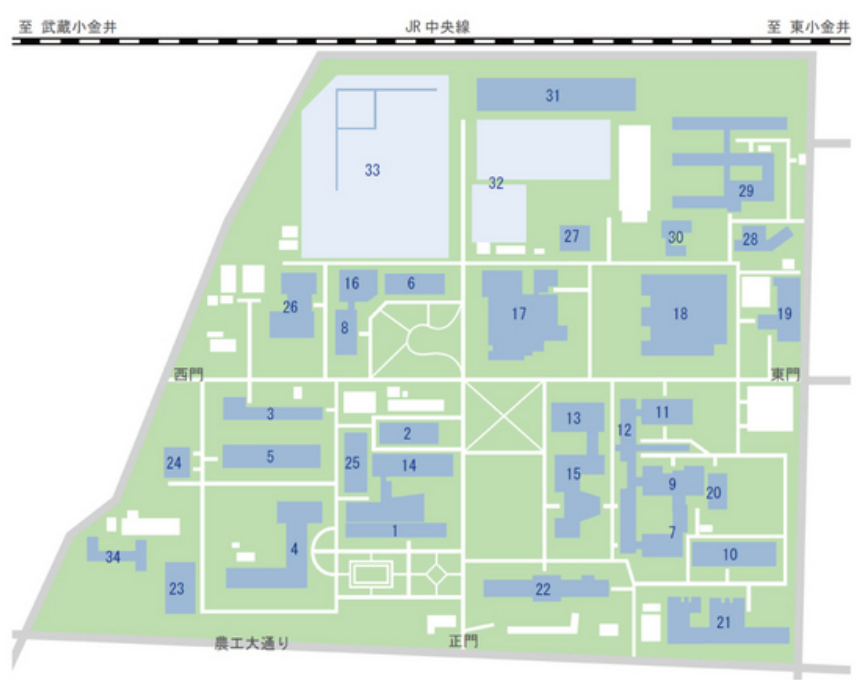
See 3. *Selection Schedule* about the date of announcement of approval result. You will be informed by post.

### **5. Application Procedures**

Applicants who have been approved to go ahead with the application should proceed to apply as required for general application. (Refer to p.2- p.4)

Admissions Section  
Koganei Student Support Office  
Tokyo University of Agriculture and Technology  
TEL: 042-388-7014  
E-mail: tnyushi@cc.tuat.ac.jp

## Koganei campus map



1. Building 1: Department of Organic and Polymer Materials Chemistry
2. Building 2: Department of Mechanical Systems Engineering
3. Building 3: Department of Electrical and Electronic Engineering
4. Building 4: Department of Organic and Polymer Materials Chemistry, Department of Chemical Engineering, Department of Applied Physics, and Department of Technology Risk Management
5. Building 5: Department of Chemical Engineering, Department of Electrical and Electronic Engineering, and Instrumentation Analysis Center
6. Building 6: Department of Electrical and Electronic Engineering
7. Building 7: Department of Computer and Information Sciences
8. Building 8: Information Media Center
9. Building 9: Department of Electrical and Electronic Engineering and Department of Technology Risk Management
10. Building 10: Department of Bio-Technology and Life Science, Department of Applied Chemistry, and Department of Computer and Information Sciences
11. Building 11: Department of Bio-Technology and Life Science and Department of Electrical and Electronic Engineering
12. Building 12: Department of Bio-Technology and Life Science, Department of Organic and Polymer Materials Chemistry, Department of Electrical and Electronic Engineering, and Department of Computer and Information Sciences
13. Building 13: International Center
14. New Building 1: Department of Applied Chemistry, Department of Chemical Engineering, and Department of Electrical and Electronic Engineering
15. Lecture Hall Building for Faculty of Engineering
16. Main Building: Graduate School of Technology Management and Administration Office
17. Koganei Library
18. Graduate School of Bio-Applications and Systems Engineering (BASE) Building
19. Union for Faculty of Engineering
20. CAD/CAM Laboratory
21. Center for Innovation and Intellectual Property
22. Nature and Science Museum
23. Research Center for Science and Technology
24. Center for Environment and Safety
25. Center for Design and Manufacturing
26. Gymnasium
27. RI Laboratory Building
28. Koganei International House
29. Keyaki Dormitory (for men)
30. Sakura Dormitory (for women)
31. Archery Facility
32. Tennis Courts
33. Athletic Ground
34. Staff Housin

# Guide to the Doctoral Course

## Graduate School of Engineering of Tokyo University of Agriculture and Technology

### 1. Admission Policy

The Graduate School of Engineering places focus on the study of natural environments and scientific technologies, accepting a wide range of students from Japan and other countries aiming to become technicians and researchers active in the international society for self-enlightenment and to acquire a broad range of knowledge and vision, and the ability to execute tasks that is sustained by high self-motivation and morality.

### 2. Major Education and Research Features

- 1) In order to respond to the scholastic research fields within the academic arena, research work is conducted under a strong guidance system according to the overall academic specialization based on the general academic system. Meanwhile, supervision of Master's or Doctoral theses is conducted under a multiple-supervision system, in order to respond to interdisciplinary research work.
- 2) In order to eliminate any hindrance that may be created by specialized academic research that will become high level but extremely narrowed, students will be asked to conduct research of sources for a research theme different to their own Master's or Doctoral theses. This is to ensure students acquire a broad range of knowledge and attain a flexible ability to think.
- 3) Classes are conducted with focus on the field related to the actual research work undertaken by the teaching staff.
- 4) The Graduate School of Engineering proactively accepts not only working people who already have acquired a master's degree, but also people who have worked for more than 2 years after graduating from an undergraduate degree.

### 3. Main Research Subjects, Department and Academic Advisors

Refer to section A on p.3 for staffs marked ※1 or ※2.

Department : Biotechnology and Life Science		
Speciality&Major Research Fields	Academic Advisor	Research Subject
<b>Biotechnology1</b>		
Cell engineering	Mikako Saito mikako(at)cc.tuat.ac.jp	Disease model cells of diabetes. Regenerative cell engineering. ES cells. Single-cell gene engineering. Femtoinjection. Food safety control and regulatory science.
Biomolecular and structural informatics	Yutaka Kuroda ykuroda(at)cc.tuat.ac.jp	Structural and functional analysis of proteins at atomic/molecular level using recombinant DNA technologies, NMR, X-ray crystallography, and computational simulation. Biophysical studies of protein aggregation.
Structure and cellular function of biomolecules	Yasumoto Nakazawa※1 yasumoto(at)cc.tuat.ac.jp	i) Structural analysis of silk fibroins. ii) Development of the medical implantation devices such as artificial cardiac valves and cardiovascular patches based on the silk fibroin.
Molecular biology and pathophysiology	Masaki Inada inada(at)cc.tuat.ac.jp (Collaborative faculty)	Molecular pathological investigation using gene targeted mice and disease models on mice.
	Yoshihiro Ohta ohta(at)cc.tuat.ac.jp	Development of novel techniques for organelle imaging and their application to mitochondrial study. Cell death, Ca <sup>2+</sup> signaling and generation of reactive oxygen species are mainly focused.



<b>Department : Biotechnology and Life Science</b>		
<b>Speciality&amp;Major Research Fields</b>	<b>Academic Advisor</b>	<b>Research Subject</b>
	Chisato Miyaura miyaura(at)cc.tuat.ac.jp (Collaborative faculty)	Investigations of refractory diseases for clinical drug development are employed for lifestyle-related diseases such as Cancer, Osteoporosis, Rheumatoid Arthritis and Periodontitis. Functional analysis of molecular biochemistry using mammalian cell to individuals are promoted research.
	Michiko Hirata※1 hirata (at)cc.tuat.ac.jp	Molecular pathology is investigating that based on gene editing techniques in molecular biochemistry. Focusing fields are development of drug screening models and diagnostic-imaging methods on life related diseases and skeletal disease including osteoporosis, periodontal disease and its related cancers.
Nanobiotechnology	Kazunori Ikebukuro ikebu(at)cc.tuat.ac.jp	Nucleic acid engineering of aptamers for the application to diagnosis and novel bottom-up nanotechnology.
	Ryuji Kawano※1 rjkawano(at)cc.tuat.ac.jp	The goal of my research is to establish a system that uses biological nanopores for single-molecule detection. Channel membrane proteins have nanochannels around 1 nm in size. These biological nanopores are capable of detecting and electrically recognize even single molecules with a high signal-to-noise ratio. However, the channel size is limited by the inherent protein structure. I plan to develop artificial nanochannels such as synthetic nanopores or polypeptides combined with biomaterials (proteins and lipid bilayers) on the basis of MEMS technology for novel nanopore sensing.
Biobusiness	Koji Sode sode(at)cc.tuat.ac.jp	Biomolecular engineering for the development of 1) novel enzymes for the diagnostic application, and 2) novel proteins for the application in the synthetic biology.
	Wakako Tsugawa tsugawa(at)cc.tuat.ac.jp	Development of novel biodevices for the creation of theranostic platforms and environmental monitoring systems.
Molecular Biochemistry	Ryutaro Asano※1 ryutaroa(at)cc.tuat.ac.jp	Artificial protein design based mainly on antibody molecules and their detailed functional analyses for development of next-generation biologicals and biosensors.
Plant biotechnology	Yoshihiro Ozeki ozeki(at)cc.tuat.ac.jp	Molecular biological and biochemical studies on the enzymes involved in plant secondary metabolisms.
	Akiyo Yamada※1 yamaden(at)cc.tuat.ac.jp	Molecular biological analysis of the genes based on the function of the proteins related to salt-tolerance phenotype of the halophyte.
<b>Biotechnology2</b>		
Marine Biotechnology	Nobuhumi Nakamura nobu1(at)cc.tuat.ac.jp	Bioelectrochemistry and Raman spectroscopy of metalloproteins and construction of biofuel cells.

<b>Department : Biotechnology and Life Science</b>		
Speciality&Major Research Fields	Academic Advisor	Research Subject
	Tomoko Yoshino y-tomoko(at)cc.tuat.ac.jp	Development of novel bio-nanomaterials through genetic engineering by microorganisms for biosensing and biomedical applications.
Biomolecular engineering	Atsushi Arakaki arakakia(at)cc.tuat.ac.jp	Molecular analysis of biomineralization mechanism. Biomimetic synthesis of organic/inorganic hybrid nanomaterials using biological molecules.
	Tsuyoshi Tanaka tsuoyo(at)cc.tuat.ac.jp (Collaborative faculty)	Production of biofuels, chemicals and pharmaceuticals on the basis of biological functions of various microorganisms. /Development of Bio-sensing system based on lab-on-a-chip technologies.
Bioelectronics	Hiroyuki Ohno ohnoh(at)cc.tuat.ac.jp	Development of ionic liquids as ion conductors, solvents for biomass extraction and energy conversion.
	Takahiro Ichikawa t-ichi (at)cc.tuat.ac.jp	Lipid molecules form bilayer structures that play an important role as a field for various functional biomolecules. In our laboratory, we aim for the construction of novel fields by controlling self-organization behavior of amphiphilic molecules.
Synthetic organic chemistry Bioorganic chemistry/chemical biology	Kazuo Nagasawa knaga(at)cc.tuat.ac.jp	Total synthesis of biologically active natural products. Development of organocatalyst.
	Kaori Sakurai sakuraik(at)cc.tuat.ac.jp	Development of novel chemical tools to study biological functions of glycolipids and natural products.
Biosociety engineering Biomolecules and proteomics	Masafumi Yohda yohda(at)cc.tuat.ac.jp	Structure and function of molecular chaperones. Genetic analysis systems for SNP genotyping and bioremediation.
	Kyosuke Shinohara※1 k_shino (at)cc.tuat.ac.jp	We examine the role of cilia in our body. Cilia are nanomachine motor device that protrude from cell surface and play important role on transport of fluid in airway, brain, and oviduct. Using knockout mouse, electron microscopy, and protein engineering, we address molecular mechanism of motility and mechanical property of cilia: How cilia move or how cilia acquire their stiffness and integrity.
Theoretical linguistics	Yuji Hatakeyama※2 hatayu(at)cc.tuat.ac.jp	Syntactic structure, semantic structure, and information structure.

<b>Department : Applied Chemistry</b>		
Speciality&Major Research Fields	Academic Advisor	Research Subject
<b>Division of Advanced Chemical Science and Technology</b>		
Opto-electronic Materials	KUMAGAI, Yoshinao 4470kuma(at)cc.tuat.ac.jp	Growth of compound semiconductor crystals from vapor phase based on the thermodynamic analysis and construction of growth system.
	MURAKAMI, Hisashi murak(at)cc.tuat.ac.jp	Crystal growth of semiconductor materials by chemical vapor reaction and characterization of optical and structural properties.
Energy Chemistry & Electrochemistry	NAOI, Katsuhiko k-naoi(at)cc.tuat.ac.jp	Energy chemistry. Electrochemical energy storage by use of nano-structured materials. Lithium-ion battery, electrochemical supercapacitor. Hybrid nanoenergy device.
	SAITO Morihiko mosaito(at)cc.tuat.ac.jp	Development of the lithium ion battery, capacitor, and fuel cell material based on electrochemistry, catalyst chemistry, and solid ionics. Evaluation of material physical properties and analysis of a reaction mechanism by electrochemistry, spectroscopy, thermometric analysis, calculation chemistry, etc.
Molecular Transformation	Hiroki Oguri h_oguri(at)cc.tuat.ac.jp	Synthesis of natural products and highly functionalized small/medium-sized molecules. Development of synthetic strategies for systematic diversification of skeletal, stereochemical and functional group properties of biologically-relevant molecules. Chemical biology and drug development of the natural product inspired molecules.
Molecular Design	YAMAZAKI, Takashi tyamazak(at)cc.tuat.ac.jp	Development of stereoselective construction methods of fluorine-containing compounds. Clarification of effect of fluorine atoms towards conformation of compounds.
	SAITO, Akio akio-sai(at)cc.tuat.ac.jp	Development of novel and efficient procedures for the synthesis of heterocyclic compounds
Molecular Catalysis	HIRANO, Masafumi hrc(at)cc.tuat.ac.jp	Activation of inactive bond in organic molecules by transition-metal complexes and the application toward molecular transformation with high atom efficiency.
	Keiji Mori※1 k_mori(at)cc.tuat.ac.jp	Concise construction of fused-cyclic skeleton by sequential C-H bond functionalization and development of $\pi$ - $\pi$ interactions based novel chiral ligand.
Inorganic Solid State Chemistry	MAEDA, Kazuyuki k-maeda(at)cc.tuat.ac.jp	Development of novel nanospace materials such as zeolite-related materials and coordination polymers, especially inorganic-organic hybrid nanospace materials.
	NOMA, Tatsuo※1 noma(at)cc.tuat.ac.jp	Synthesis and application of functional ceramic films including ferroelectrics, dielectrics and photo catalysts. Designing of processing method using high electric field at elevated temperatures.

<b>Department : Applied Chemistry</b>		
Speciality&Major Research Fields	Academic Advisor	Research Subject
Capacitor Technology (Sponsored Laboratories)	TAMAMITSU, Kenji※1 tamamitu(at)cc.tuat.ac.jp	Development of energy storage devices and their functional nanomaterials. Electrochemical energy storage by electric double layer capacitors. Lithium-ion capacitors and hybrid supercapacitors.
<b>Division of Organic and Polymer Materials Chemistry</b>		
Organic and Polymeric Materials for Electronics and Optoelectronics	SHIMOMURA, Takeshi Professor, Dr. simo(at)cc.tuat.ac.jp	*Functional Polymers for Flexible Molecular Electronics *Development of Conducting Polymer Nanofibers *Polymer Energy Devices Using Low-Dimensionality and Flexibility *Development of Soft Devices with Self-Assembling Properties
	NAKANO, Koji Senior Assistant Professor, Dr. k_nakano(at)cc.tuat.ac.jp	*Development of organic functional materials based on organic synthetic chemistry *Design and synthesis of new $\pi$ -conjugated molecules, and their application to organic electronic/optoelectronic materials *Development of highly-active and selective polymerization catalyst
	TATEWAKI, Yoko※1 Senior Assistant Professor, Dr. ytatewa(at)cc.tuat.ac.jp	*Development of organic functional materials for electronics devices *Synthesis of conducting and magnetic materials *Preparation of self-assembly nanomaterials *Conducting and magnetic properties of organic devices
Fundamental Organic Chemistry for Molecular and Polymeric Materials	YONEZAWA, Noriyuki Professor, Dr. yonezawa(at)cc.tuat.ac.jp	Design of Organic Molecules and Transformations on the Basis of Fine Molecular Structure Analysis Enabling Satisfactory Reactivity and Selectivity, as Protocols for Exhaustive Use of Carbon Resources: *Superacid-mediated Activation of Conventional Organic Molecules Performing C-C Bond Formation *Chemistry of Aromatic-Rings Accumulated Molecules with Non-coplanar Configuration *Fundamental Organic Chemistry for Polymer Materials
	OKAMOTO, Akiko※1 Senior Assistant Professor, Dr. aokamoto(at)cc.tuat.ac.jp	*Design and Analysis of Spatial Organization of Aromatic-Rings-Accumulated Organic Molecular Compounds: Single Molecular Spatial Organization in Crystal, Crystalline Molecular Packing, and Molecular Structure in Solution *Synthetic Study of Aromatic Condensation Polymers having Repeating Units of Non-coplanar Accumulated Aromatic Rings
Polymeric Biomaterials	WATANABE, Toshiyuki Professor, Dr. toshi(at)cc.tuat.ac.jp	*Development of photoresponsive polymers *Development of reversible thermoresponsive recording of fluorescent image *Synthesis of diamond from carbon dioxide *Development of photoresponsive drug delivery systems
	MURAKAMI, Yoshihiko Associate Professor, Dr. muray(at)cc.tuat.ac.jp	*Biomaterials *Surgical Tissue-Adhesive Materials *Gels for Endovascular *Drug-Release Matrix *Polymers Agent *Polymeric Film for Bioanalysis

<b>Department : Applied Chemistry</b>		
Speciality&Major Research Fields	Academic Advisor	Research Subject
Physical Chemistry of Organic and Polymeric Materials	OZAKI, Hiroyuki Associate Professor, Dr. hiroyuki(at)cc.tuat.ac.jp	*Electronic and Geometric Structure Analysis of Extrathin (4–10 Å) Molecular Aggregates on Clean Surfaces *Creation, Characterization, and Manipulation of a Single Sheet (or Chain) of a Polymer
Organic and Polymeric Materials with Integrated Molecular Structure	USUI, Hiroaki Professor, Dr usui(at)cc.tuat.ac.jp	*Physical Vapor Deposition of Organic Materials *Polymeric Film Formation by Vapor Deposition Polymerization *Interface Control of Thin Films Pertinent to Polymeric Materials *Electronic Devices Based on Organic Thin Films
	OIKE, Hideaki Associate Professor, Dr. oike(at)cc.tuat.ac.jp	*Topological Polymer Chemistry Including Cyclic and Branch Macromolecules *Polymer Synthesis Based on Amino Acids *Supramolecular Polymer Chemistry
Material Systems Mathematics	GODA, Hiroshi Professor, Dr. goda(at)cc.tuat.ac.jp	*Knots, links and 3-dimensional manifolds
	HATAKENAKA, Eri※1 Associate Professor, Dr. hataken(at)cc.tuat.ac.jp	*Invariants of knots and manifolds in low dimensions
Material Technology for Organic and Polymeric Substances	SAITO, Hiromu Professor, Dr. hsaitou(at)cc.tuat.ac.jp	*Polymer Blends *Mechanical and Optical Properties of Polymers *Morphology Design of Polymers by Supercritical Fluids *Crystallization of Polymers
Material Science & Technology aiming Human Health Support (Corporate Sponsored Research Program)	ATOMI, Yoriko Project Professor, Dr. yatomi(at)cc.tuat.ac.jp  SHIMIZU, Miho※1 Project Associate Professor, Dr. mshmz(at)cc.tuat.ac.jp	Our lab is focusing on (1) the effects of avian eggshell membrane (ESM)-containing cosmetics and supplement on skin and body health and analyzing the underlying molecular mechanism. (2) To solve the falling problems in the super-aged society, evaluations of functional wear which stimulate the awareness to the center of gravity of the human body are also performed. Both elasticity measurements and mechano-dynamics studies and expression of stress proteins, microtubule, extracellular matrix (ECM), and anti-aging Sirtuin genes are examined to discover the yet-identified prevention and cure methods for Alzheimer's disease and metabolic syndrome. Students from various backgrounds are welcome.
<b>Division of Chemical Engineering</b>		
Process Systems Engineering	YAMASHITA, Yoshiyuki Professor, Dr. yama_pse(at)cc.tuat.ac.jp	Design and application of dependable process control systems, advanced process monitoring systems, process simulators, and decision support systems for various process systems.

<b>Department : Applied Chemistry</b>		
Speciality&Major Research Fields	Academic Advisor	Research Subject
Chemical Reaction Engineering	SAKURAI, Makoto※1 Associate Professor, Dr. sakuraim(at)cc.tuat.ac.jp	Studies on energy conversion process and micro chemical process for clean energy production and energy conservation.
Interfacial Chemical Engineering	TAKIYAMA, Hiroshi Professor, Dr. htakiyam(at)cc.tuat.ac.jp	Research and development of industrial crystallization technology for producing crystalline particles such as pharmaceuticals, foods, battery materials and functional materials.
	NAGATSU, Yuichiro※1 Associate Professor, Dr. nagatsu(at)cc.tuat.ac.jp	Fundamental study of reacting liquid flow and applied study of reacting liquid flow for environmental and energy fields.
Chemical Energy Engineering	FUSHIMI, Chihiro ※ 1 Associate Professor, Dr. cfushimi(at)cc.tuat.ac.jp	Development of high-efficiency coal-fired power system and a novel coal/biomass gasifier, System analyses of renewable energy including algae biomass, Development of energy-saving drying system using self-heat recuperation technology, Production of fine powder energy materials using fluidized beds.
Environmental Bio-Engineering	HOSOMI, Masaaki Professor, Dr. hosomi(at)cc.tuat.ac.jp	Development of non-combustion technologies for persistent organic pollutants (mechanochemical, chemical dehalogenation, photodegradation), and remediation technologies for contaminated soil and groundwater.
	TERADA, Akihiko Associate Professor, Dr. akte(at)cc.tuat.ac.jp	Development of bioreactor systems and materials for water/wastewater treatment by controlling complex microbial community in natural environments and control/prevention of biofilms for environmental/medical applications.
Reaction Engineering	TOKUYAMA, Hideaki※1 Associate Professor, Dr. htoku(at)cc.tuat.ac.jp	Development of functional polymers and gels and process for metal separation, organic compound separation, drug delivery system, etc. Preparation of micro- or nanoparticles and porous materials.
Communication Studies	SATO, Yoko※2 Professor satoyoko(at)cc.tuat.ac.jp	Communication studies; Second language teaching with a special reference to extensive reading, vocabulary acquisition and testing of English; Representation techniques of language art and performing arts.

<b>Department : Mechanical Systems Engineering</b>		
Specialit & Major Research Fields	Academic Advisor	Research Subject
<b>Division of Fundamental Mechanical Engineering</b>		
Fluid Mechanics	Professor Masaharu KAMEDA, Dr. kame(at)cc.tuat.ac.jp	Bubble dynamics, high-speed aerodynamics, and fluid measurements. Current research topics are (1) pressure-sensitive paint for unsteady aerodynamics, (2) fragmentation of vesicular magma in volcanic eruption, (3) supersonic air inlets, and (4) mass transport by bubbling.
	Associate Professor Yoshiyuki TAGAWA, Dr. ※1 tagawayo(at)cc.tuat.ac.jp	Main research field of Yoshiyuki Tagawa's lab is in multiphase flow / micro-fluidics. Current research topics are on supersonic microjets impacting on soft matters. Here we investigate the fundamental mechanism of generation of the microjets and their applications for medical devices / industrial processes. Also the dynamics of droplets are investigated.
Materials Engineering for Machinery	Professor Toshio OGASAWARA, Dr. ogasat(at)cc.tuat.ac.jp	Experimental and analytical studies of advanced composite materials and composite structures for aerospace systems, automobiles, and robots. Development of novel composite materials such as carbon nanotube composites, ceramics/intermetallics composites, high temperature polymer matrix composites, ablator.
	Associate Professor Akinori YAMANAKA, Dr. ※1 a-yamana(at)cc.tuat.ac.jp	Multi-scale simulation of microstructure evolution and elastoplastic deformation behavior in metallic materials (especially in steel) using phase-field method and crystal plasticity finite element analysis based on homogenization method and its experimental validation.
Strength of Materials	Professor Shigeru NAGAKI, Dr. nagaki(at)cc.tuat.ac.jp *Retires on March 2017	Constitutive theory on inelastic material. Formulation and application of mechanical models for materials comprising microscopic structures such as porous materials and polycrystals. Deformation analysis concerning heat treatment processes.
Elasto-Plasticity and Material Forming	Professor Toshihiko KUWABARA, Dr. kuwabara(at)cc.tuat.ac.jp	Numerical simulation of material forming, constitutive modeling of metals based on multi-axial stress tests, development of experimental methods for evaluating the formability of metals, development of novel material forming technology, intellectualization of forming machines and dies.
	Associate Professor Keiichi NAKAMOTO, Dr. ※1 nakamoto(at)cc.tuat.ac.jp	The research work is focused on the area of machine tool and machining technology to realize "Intelligent Shape Creation with True CAM (Computer Aided Manufacturing)". Our target is to develop effective manufacturing software regarding process planning and tool path generation in multi-axis control machining. In addition, we are working on various researches to machine the mold of optical elements with high efficiency and high precision.

<b>Department : Mechanical Systems Engineering</b>		
<b>Specialit &amp; Major Research Fields</b>	<b>Academic Advisor</b>	<b>Research Subject</b>
Analysis of Mechanical Components	Professor Yasuhisa ANDO, Dr. y-ando(at)cc.tuat.ac.jp	Studies on micro/nano tribology and application of new functions to surfaces using micro fabrication technologies. Studies on applications and development of MEMS (microelectromechanical systems), such as 3D-microstages.
<b>Division of Applied Mechanical Engineering</b>		
Vibration Analysis and Control	Professor Takayoshi KAMADA, Dr. kama(at)cc.tuat.ac.jp	Active vibration control, smart structure, health monitoring, earthquake resistance technology, base isolation and vibration control of building, vehicle control, elevator technology.
	Associate Professor Ikuo MIZUUCHI, Dr.※1 mizuuchi(at)cc.tuat.ac.jp	Design, implementation, control methods, sensing mechanisms, actuation mechanisms, software architecture, artificial intelligence, and other aspects of intelligent robots: ongoing subjects include musculoskeletal humanoid robots inspired from human body structure, kitchen assistant robots, intelligent robots, and so on.
Thermal and Fluid Systems	Professor Akira MURATA, Dr. murata(at)mmlab.mech.tuat.ac.jp	Heat and fluid flow related to gas turbines, Numerical simulation of turbulent heat transfer, Flow visualization, Heat and fluid flow related to surface tension, Marangoni force, and wettability, Molecular dynamics simulation of thermal problems.
	Associate Professor Kaoru IWAMOTO, Dr. iwamotok(at)cc.tuat.ac.jp	Efficient thermal-fluid control techniques for energy saving and environment impact mitigation will be developed. Efficient turbulence control techniques for drag reduction of airplanes, those for material engineering (efficient production of high-quality materials), those for bioengineering (effect of fluid pulsation) and those for chemical engineering (efficient production of hydrogen).
Simulation Engineering	Professor Hiroshi MOURI, Dr. h-mouri(at)cc.tuat.ac.jp	Aiming to automatic driving, recognition technology of the surrounding circumstances using on-board sensors, state estimation techniques and the vehicle control technology have been studied, e.g. the localization technique based on the data of laser range finder, camera and satellite(Global Position System),
	Associate professor Pongsathorn RAKSINCHAROENSAK, Dr. pong(at)cc.tuat.ac.jp	Research interests include the development of active vehicle control technologies with integrated sensing of human driver, vehicle motion and road surroundings for safety and security of motorized society, e.g. the safety devices for personal mobility, vehicle dynamics and control, and human-centered driver assistance systems.



<b>Department : Mechanical Systems Engineering</b>		
<b>Specialit &amp; Major Research Fields</b>	<b>Academic Advisor</b>	<b>Research Subject</b>
Precision Measurement	Professor Wataru NATSU, Dr. summer(at)cc.tuat.ac.jp	The main research topics are: research and development on environmental-friendly production system for shape generation with ECM, EDM and polishing; phenomena elucidation and application technology for electrochemical machining; research and development on machining simulation technology; shape generation for Hard-to-machine materials with electrochemical and mechanical polishing; and research on micro deep-hole machining by EDM.
	Associate Professor Masayoshi WADA, Dr.※ 1 mwada(at)cc.tuat.ac.jp	Wheeled mobile robots, multiple mobile robot coordination, motion control of electric vehicles, human-machine interface, mechatronics systems for welfare applications and other research topics covering wide area of engineering technology includes machine design, electric circuit design, computer programming, and control theories.
Control Systems	Professor Yasutaka TAGAWA, Dr. tagawa(at)cc.tuat.ac.jp	Research is under way in developing novel devices for modeling and controlling of mechanical systems. Basic research and device development are performed for vibrational testing systems for the next generation, advanced motion simulator, and power assist systems for man-machine cooperative motion. Design method is studied for controlling systems based on transfer functions.
	Associate Professor Gentiane VENTURE, Dr. ※1 venture(at)cc.tuat.ac.jp	The main research topics are at the edge of robotics and biomechanics. We are focusing on finding motion features that characterize the humans; and that can be understood by the robots. Research includes development of formalisms and methodologies to understand the human (actions, emotions) and the human motions from their dynamics, as well as to measure the humanoid dynamics. The range of applications includes human-robot interaction, medical diagnostics support, rehabilitation monitoring, sport science, entertainment.
Mechanical Systems Design	Professor Shigeki TOYAMA, Dr. toyama(at)cc.tuat.ac.jp	Software for dynamic systems are developed to analyze and control multi-body systems such as vehicles and robots. Tools for discussing complicated motions in machine parts coupled with rotational and translational joints. Algorithms are newly developed whose computation time is proportional to the number of moving bodies. This can compute complex motion of machines much faster than ordinary methods whose computation time is proportional to the cube of member numbers.
	Associate Professor Yun Jung Heo, Dr.※1 yunjheo(at)cc.tuat.ac.jp	BioMEMS, biosensors, tissue microfabrication, cellular mechanotransduction

<b>Department : Mechanical Systems Engineering</b>		
Specialit & Major Research Fields	Academic Advisor	Research Subject
Manufacturing System Engineering	Professor Hiroyuki SASAHARA, Dr. sasahara(at)cc.tuat.ac.jp	Rapid manufacturing. Physical simulation to predict the machining process. Development of a new machining/processing method which can give a functional additional value to the generated surface of a workpiece by cutting and frictional stir burnishing. New machining technology for energy saving and clean processing.
Mechanical Information Engineering	Professor Norihiko UMEDA, Dr. umeda (at) cc.tuat.ac.jp *Retires on March 2018	Main activity of this laboratory is research and development of new generation of technologies by merging optics and nanomechanics. Researches are performed concerning nano-actuators by means of photon mechanics, surface plasmon sensors, nano-observation and nano-processing utilizing near-field optics, and bio-photonics.
	Associate Professor Kentaro IWAMI, Dr.※1 k_iwami (at) cc.tuat.ac.jp	Main research topic of Iwami group is Nano/Microelectromechanical Systems (NEMS/MEMS) based on nanooptics/nanophotonics. It covers basic engineering of micro/nanofabrication and scientific exploratory of plasmonics, and our interest is focusing on some practical applications such as massively-parallel electron beam lithography, nanomechanical sensing systems, and so on.
Precision Measurement	Associate professor Itsuo HANASAKI, Dr. ※1 hanasaki (at)cc.tuat.ac.jp	Cross-disciplinary approaches on the phenomena typically at micro/nano spatio-temporal scales with an emphasis on the theoretical aspects mainly based on the concepts of statistical mechanics and dynamical systems.
Geometric Mechanical Engineering	Professor Jiro SEKIGUCHI, Dr. sekiguti(at)cc.tuat.ac.jp *Retires on March 2017	Representation of semi-simple Lie groups, Analysis on symmetric spaces.
	Senior Assistant Professor Katsuyuki NAOI, Dr.※1 naoik(at)cc.tuat.ac.jp	Representation theory of infinite-dimensional Lie algebras and their q-analog
Intelligent Systems for Mechanical Engineering	Professor Shunjiro SHINOHARA, Dr. sshinoha(at)cc.tuat.ac.jp	Generation and control of high-density RF plasma, research and development of plasma rocket, plasma diagnostics (laser, probe etc.), analysis and application of nonlinear plasma phenomena
	Associate Professor Hiroyuki NISHIDA, Dr. hnishida(at)cc.tuat.ac.jp	Research on magnetohydrodynamics, aerodynamics and flight dynamics of advanced space propulsions and reusable space vehicles. For example, research on control of high-energy plasma flow for advanced propulsion, development of flow control device and application of the flow control device to reusable space vehicle. Numerical simulation and experiment are conducted to address these objectives.

<b>Department : Electronic and Information Engineering.</b>		
Specialit & Major Research Fields	Academic Advisor	Research Subject
<b>Division of Applied Physics</b>		
Quantum Functions	IKUSHIMA, Kenji ikushima(at)cc.tuat.ac.jp	Quantum devices and their applications. Through fundamental studies of quantum transport in semiconductors, ultra-sensitive terahertz detection is targeted.
Atomic Processes	UKAI, Masatoshi ukai3(at)cc.tuat.ac.jp	Physics of electronic, atomic, molecular, and photonic collisions and following relaxation processes in the gas and the condensed phases. Development of new experiments for atomic spectroscopy.
	HATAKEYAMA, Atsushi hatakeya(at)cc.tuat.ac.jp	Experimental studies in atomic, molecular and optical physics on the basis of laser spectroscopy, laser spin polarization, and laser cooling. The physics of atom-surface interactions and its applications to precision measurement and quantum manipulation.
Semiconductor Quantum Electronics	MAEHASHI, Kenzou maehashi(at)cc.tuat.ac.jp	Synthesis of nanocarbon such as carbon nanotubes and graphene, and fabrication of quantum devices and high sensitive biosensors using nanocarbon-based devices.
Quantum Beams	MINODA, Hiroki hminoda(at)cc.tuat.ac.jp	Development of transmission electron microscopy and its applications to biological specimens and functional materials in their actual environment.
Quantum Electronics	MISAWA, Kazuhiko kmisawa(at)cc.tuat.ac.jp	Research on quantum-mechanical control of optical properties in condensed matters by using tailored femtosecond pulses, and its application to photonic devices, photochemical-reaction control, and molecular imaging.
	MIYAJI, Godai※1 Gmiyaji(at)cc.tuat.ac.jp	Experimental study on nonlinear optical interaction process between light and mater with intense femtosecond laser pulses and its application to material nano-processing technique.
Complex Functions of Materials	MURAYAMA, Yoshihiro ymura(at)cc.tuat.ac.jp	Soft matter physics, Biophysics, and Non-equilibrium physics. Experimental studies on dynamical properties of biomolecules and living matter.
	YANAGISAWA, Miho※1 myanagi(at)cc.tuat.ac.jp	Soft matter physics and polymer physics on biological phenomena using cell-sized model systems mimicking cellular structures and environments.
Superconducting Materials	NAITO, Michio minaito(at)cc.tuat.ac.jp	Experimental research on superconductivity, superconducting materials, and superconducting application. Especially search for new superconducting materials via thin-film synthesis.
	YAMAMOTO, Akiyasu ※1 akiyasu (at)cc.tuat.ac.jp	Experimental research on superconductivity, superconducting materials, and superconducting application. Especially development of novel strong magnets using new high temperature superconductors.

<b>Department : Electronic and Information Engineering.</b>		
Specialit & Major Research Fields	Academic Advisor	Research Subject
Magnetism in Condensed Matter	KATORI, Hiroko h-katori(at)cc.tuat.ac.jp	Research on phase transition phenomena in magnetic materials, such as geometrically frustrated systems, in which the spin, charge and lattice degrees of freedom are intertwined complexly. Search for novel physical properties and functions in these systems
Organic Electronics	KAJI, Toshihiko※1 kaji-t(at)cc.tuat.ac.jp	Organic electronics and optics. Experimental research on organic electronic devices, such as solar cells, and on nanostructure/crystallinity control of organic thin films.
Physical Information and Communication	MORI, Yukiko※2 argo(at)cc.tuat.ac.jp	The study of the drama and the films from the viewpoint of visual communication. Included are the researches on the audience, the cultural backgrounds, and the development of visualizing techniques.
<b>Division of Applied Electronics Engineering</b>		
Electronic System Engineering	SAMESHIMA, Toshiyuki tsamesim(at)cc.tuat.ac.jp	Researches on passivation of defects of crystalline semiconductors and their surfaces, and on new processing and devices of semiconductor solar cells and transistors.
Power Electronics	DENG, Mingcong deng(at)cc.tuat.ac.jp	Fault detection and fault tolerant control system design of thermoelectric conversion elements, robust nonlinear compensation of smart material actuators and micro-hands.
Electrical Energy Conversion Engineerring	WAKUI, Shinji wakui(at)cc.yuat.ac.jp	Positioning equipment for high speed, anti-vibration apparatus for micro-gravity order, servo type vibration sensor including its application for anti-vibration, and servo-motor driving technology.
	IIMURA, Yasufumi※1 iimura(at)cc.tuat.ac.jp	Flat panel displays and their related topics, such as liquid crystal displays (LCDs), organic Electro-Luminescence displays (OLEDs) and organic TFTs.
Electronic Device Engineering	SUDA, Yoshiyuki sudayos(at)cc.tuat.ac.jp *Retires on March 2018	Si-system MBE and environmentally-light load sputter epitaxy, nanoscale Si-system advanced devices (2DFET, RTD, QD, SET, NVM, sensors) and processing techniques.
	SHIRAKASHI, Jun-ichi shrakash(at)cc.tuat.ac.jp	Novel nanofabrication techniques, single-electron transistors (SETs), and ferromagnetic nanostructures.
Integrated Functional Electronics	UENO, Tomo tomoueno(at)cc.tuat.ac.jp	Development of Integrated Circuit based on novel device and process technology. Low temperature insulating film fabrication, OLED fabrication, electrical measurement, physical & chemical analysis.
	SHIMIZU, Hiromasa h-shmz(at)cc.tuat.ac.jp	Research on Semiconductor / Magnetic Hybrid Materials, and Their Application to Novel Opto-Spintronics Devices.
Optoelectronics and Photonics	TAKAKI, Yasuhiro ytakaki(at)cc.tuat.ac.jp	Three-dimensional display, Holography, Three-dimensional camera, and Optical information processing.

<b>Department : Electronic and Information Engineering.</b>		
<b>Specialit &amp; Major Research Fields</b>	<b>Academic Advisor</b>	<b>Research Subject</b>
	TANAKA, Yosuke tyosuke(at)cc.tuat.ac.jp	Multi-function and high-speed optical signal processing, optical sensing system, and related devices and data processing technique.
Environmental Energy Engineering	NAGASAKA, Ken bahman(at)cc.tuat.ac.jp	Power System Engineering, New Energies including Wind, Solar, Micro Hydro and Geothermal Generation, Planning and Operation of Micro Grids, Smart Grid, Load Forecasting, Power Deregulation, Energy Conservation, Application of Intelligent Engineering such as Neural Network to Power Systems, etc.
Radio Communication System Engineering	SUZUKI, Yasuo ysuzuki-(at)cc.tuat.ac.jp *Retires on March 2016	Multidimensional (frequency, time, code, and space) equalization technology against Rayleigh or Rice fading. Effective use of the frequency using some adaptive technologies.
	Kenta Umebayashi※1 ume_k(at)cc.tuat.ac.jp	Wireless communication network, radio environment recognition techniques, Effective spectrum resource control, cognitive radio techniques.
Intelligent Systems	FUJIYOSHI, Kunihiro fujiyosi(at)cc.tuat.ac.jp	Computer-Aided Design and Design-Automation of VLSI layout problem, using combinatorial algorithm and graph theory.
Electromagnetic Wave Engineering	UNO, Toru uno(at)cc.tuat.ac.jp	Antennas and propagation, Computational electromagnetics, Bio-electromagnetics, Geophysical sensing, Electromagnetic environment, Elecromegnetic metamaterials.
	ARIMA, Takuji t-arima(at)cc.tuat.ac.jp	Computational electromagnetics, New materials for electromagnetic waves, Bio-electromagnetics.
Medical Information System Engineering	SHIMIZU, Akinobu simiz(at)cc.tuat.ac.jp	Medical Imaging, Computer-aided Diagnosis, Pattern Recognition, Multidimensional Signal Processing.
	TAKIYAMA, Ken※1 ken-taki (at)cc.tuat.ac.jp	Main themes are 1. elucidation of neural mechanisms that relate to motor control and learning and 2. proposal of efficient training to improve motor skill. Main techniques are neural network model and human behavioral experiments. We plan to utilize electroencephalograms and machine learning techniques.
Image Processing	KITAZAWA, Hitoshi kitazawa(at)cc.tuat.ac.jp *Retires on March 2017	Image processing for security monitoring system: moving object tracking, object recognition, privacy protection.
	TANAKA, Toshihisa tanakat(at)cc.tuat.ac.jp	Mathematical signal processing and its applications to: brain signal processing for brain-machine interfacing, image processing and pattern recognition, adaptive signal processing, and radar signal processing.
<b>Division of Computer Science</b>		

<b>Department : Electronic and Information Engineering.</b>		
Specialit & Major Research Fields	Academic Advisor	Research Subject
Algorithmics	KANEKO, Keiichi k1kaneko(at)cc.tuat.ac.jp	Algorithms for interconnection networks, parallel/distributed processing, dependable computing.
Mathematical optimization	MIYASHIRO, Ryuhei※1 r-miya(at)cc.tuat.ac.jp	Combinatorial optimization, mathematical programming, discrete optimization, algorithm, modeling.
Systems Software	NAMIKI, Mitaro namiki(at)cc.tuat.ac.jp	Systems software (operating systems, compiler, protocol stack, window system), embedded systems, high performance computer systems, distributed processing, network architecture, low power computer systems, information systems.
	YAMADA, Hiroshi※1 hiroshiy(at)cc.tuat.ac.jp	Operating systems, system virtualization, parallel and distributed systems, system software for dependable computing and cloud computing.
System Design	SUGIURA, Shinya※1 ssugiura(at)cc.tuat.ac.jp	Wireless communications, signal processing, channel coding, and networking
	FUJINAMI, Kaori※1 fujinami(at)cc.tuat.ac.jp	Human-computer interaction, distributed smart sensing and context sensing, embedded interaction.
	FUJITA, Katsuhide※1 katfuji(at)cc.tuat.ac.jp	Artificial intelligence related to autonomous agents, multi-agent systems, data mining, complex networks, knowledge management.
Biologically-inspired computing	KONDO, Toshiyuki t_kondo(at)cc.tuat.ac.jp	Neurocomputing, evolutionary computation, cognitive robotics, cognitive interface design, brain-computer interface.
Image and vision computing	SHIMIZU, Ikuko ikuko(at)cc.tuat.ac.jp	Computer vision, shape and appearance modeling, image recognition.
Computer networks	YAMAI, Nariyoshi nyamai(at)cc.tuat.ac.jp	Research for administration, deployment, management, operation, and evaluation of large-scale distributed systems including the Internet, such as Internet architecture, network security, and so on.
	NAKAJO, Hironori nakajo(at)cc.tuat.ac.jp	Processor micro-architecture, parallel processing, VLSI design, high performance computing, embedded computer.
Cognitive interaction technology	NAKAGAWA, Masaki, nakagawa(at)cc.tuat.ac.jp	Human interfaces, pattern recognition, handwriting recognition, pen-based interfaces, natural language processing, web applications.
Statistical classification and retrieval	HOTTA, Seiji※1 s-hotta(at)cc.tuat.ac.jp	Classification and clustering, invariances in recognition, information retrieval.
Human computer interaction	FUJITA, Kinya kfujita(at)cc.tuat.ac.jp	Human-centered smart interface, telework, online communication, virtual reality.
Information theory	WATANABE, Shun※1 shunwata(at)cc.tuat.ac.jp	Information theory, Communication engineering, Cryptography, Information security.
Natural Language Information Science	SHINOHARA, Kazuko※1 k-shino(at)cc.tuat.ac.jp	Cognitive linguistics, Conceptual Metaphor Theory, Spatial cognition and language.

<b>Department : Electronic and Information Engineering.</b>		
Specialit & Major Research Fields	Academic Advisor	Research Subject
	UNO, Ryoko※1 ryokouno(at)cc.tuat.ac.jp	Grammatical analysis and constructive approach to explore the cognitive basis of grammar
Mathematical Informatics	HARA, Nobuo nhara(at)cc.tuat.ac.jp	Algebraic geometry and commutative algebra in positive characteristic. In particular, study of algebraic varieties and their singularities via the Frobenius morphism
	MURATA, Mikio※1 mmurata(at)cc.tuat.ac.jp	Discretization and ultradiscretization of differential equations, Cellular automaton, Integrable systems and Painleve equations.

<b>Collaborative Study Fields of Graduate School of Engineering</b>		
<p>The following academic study fields aim to activate collaborative study with external research institutes that are celebrated for their excellent research achievements.            Note: Those who wish to study in any of the collaborative fields should obtain prior guidance from the chief of each department.</p>		
<b>Department : Biotechnology and Life Science</b>		
Speciality & Major Research Fields	Academic Advisor	Research Subject
Environmental Genome Technology (Cooperation Program with National Institute of Advanced Industrial Science and Technology (AIST))	MACHIDA, Masayuki m.machida(at)aist.go.jp NAKAMURA, Noriyuki noriyuki-nakamura(at)aist.go.jp NAKAMURA, Chikashi chikashi-nakamura(at)aist.go.jp	Cell engineering based on nanotechnology aiming to use iPS cells or somatic stem cells practically for the regenerative medicine. Genome engineering based on high-throughput genome analysis aiming to make fine products from the gene resources of <i>Aspergillus oryzae</i> used for Japanese traditional fermentation industries or the related species.
<b>Department : Applied Chemistry</b>		
Speciality & Major Research Fields	Academic Advisor	Research Subject
Non-equilibrium Process Engineering (Cooperation Program with Mitsubishi Chemical Holdings Corporation)	ASATANI, Haruo Visiting Professor, Dr. KAKIUCHI, Hiroyuki※1 Visiting Professor, Dr.	Most of industrial processing of chemical products are in continuous operation. On the other hand, non-equilibrium process operation is emerged recently. We study the theory and practical methods for unsteady and non-equilibrium processing systems.
<b>Department : Mechanical Systems Engineering</b>		
Speciality & Major Research Fields	Academic Advisor	Research Subject
Traffic Transport Systems Engineering (Cooperation Program with Railway Technical Research Institute)	Professor Motohide MATSUI ※1 Associate Professor Takahiro TOMIOKA, Dr. ※1 Associate Professor Yutaka SAKUMA, Dr. ※1	Education and research are carried out for advanced analysis and design methods to develop higher velocity train systems for future generation; train body design applicable for higher velocity, technologies for lighter train body and safety improvement. Social and societal need and problems for future transportation systems are analyzed and evaluated.
Aero Space Engineering (Cooperation Program with Japan Aerospace Exploration Agency)	Hitoshi FUJIWARA※1 Takashi YAMANE※1 Takashi AOYAMA※1 Yasushi WATANABE※1	Space propulsion engineering and high-speed aerodynamics concerned with the developments of airplane and spacecraft are studied. In the space propulsion engineering, simulation technology of engine system for airplane, heat resistance and cooling technology of high temperature turbine are studied. In the high-speed aerodynamics, flow control at ultrasonic and hypersonic speed on engine intake and hypersonic boundary layer.



Traffic Safety and Environment Engineering (Cooperation Program with National Traffic Safety and Environment Laboratory)	Kazumoto MORITA※1 Daisuke KAWANO※1	The research and education for the development of advanced welfare society is promoted by applying the fundamental studies on symbiotic science and technology. Especially, the research and the education are studied at cooperated laboratories where the social environment foundations of safety in road traffic and social environment and saving of energy in traffic are guaranteed, verified and examined.
Humanoid Engineering (Cooperation Program with National Institute of Advanced Industrial Science and Technology(AIST))	Eiichi YOSHIDA※1 Abderrahmane KHEDDAR ※1	Obstacle avoidance algorithm of humanoid robot for efficient object manipulation and carrying task, motion control of humanoid robot by considering its dynamic balance, and remote control of robot by BCI (brain-computer interface)
Automobile prevention safe engineering (Cooperation Program with Japan Automobile Research Institute)	Nobuyuki UCHIDA※1 Hisashi IMANAGA※1	Causation analysis of traffic accidents is a fundamental part of active safety research. Particularly, understanding of driver behaviour during pre-crash period is important for developing preventive safety measures or Advanced Driver Assistance Systems (ADAS). Critical events captured by driving data recorder ("DORA-RECO") will be analyzed for the purpose. Instrumented vehicle experiments which reproduce typical pre-crash scenarios will be conducted for developing preventive safety measures.

**Department : Electronic and Information Engineering**

Speciality & Major Research Fields	Academic Advisor	Research Subject
Advanced Electronic Information System Technology (Cooperation Program with Central Research Laboratory of Hitachi, Ltd)	LI, Yongun※1 ANDO, Masahiko	Optoelectronic Devices, Nanophotonics, Bioinformatics.
Information-Communication Engineering (Cooperation Program with National Institute of Information and Communications Technology)	TANAKA, Masato※1 ENDO, Akira※1 WATANABE, Soichi※1 HIROSE, Nobumitsu※1	Education and research for fundamental technologies related with wireless communication HF devices, communication systems, communication environment and electromagnetic wave measurement technologies which support the development of the next-generation information-communication application fields and their key technologies.
Biomedical Electronics (Cooperation Program with RIKEN)	YOKOTA, Hideo※1 KITAJO, Keiichi※1 YOSHIZAWA, Shin※1	Electronics in biomedical engineering related to measurement, signal processing, interfacing, imaging, simulation, and mechatronics.

<p>Urban Space Informatics (Cooperation Program with National Institute of Advanced Industrial Science and Technology(AIST))</p>	<p>KURUMATANI, Koichi SASHIMA, Akio※1 YAMASHITA, Tomohisa ※ 1</p>	<p>Analysis of Sensory Data, Machine Learning, Mathematical Analysis of Social Simulation, Service Design and Social Implementation. Education and research are carried out for "Urban Space Informatics," the aim of which is to realize utility and safety in urban space and humans living there. The approach is 1) to analyze and understand sensory data of urban space and humans by machine learning with target model, and 2) to explore possible worlds by social simulations with real sensory data.</p>
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{ For October 2015 Enrollment }  
 { For April 2016 Enrollment }

Circle an applicable item

Tokyo University of Agriculture and Technology Graduate School of Engineering  
(Doctoral Course)

志 願 票

**Admission Voucher**

Preferred Department		Preferred Division		Examinee's No.	* DC—
Preferred Supervisor	(Signature)		Proposed Research Title		
Applicant's Name			M / F	Place of Work or University Currently Enrolled	
Date of Birth	(day) (month) (year)			Domicile (or Nationality)	(Foreign students to provide nationality)
Current Address	(Post Code — )		(C/O )		
	TEL: ( ) —		Home/Pager ( )		
Contact Address	(Post Code — )		(C/O )		
	TEL: ( ) —		Home/Pager ( )		
Resume	Academic Record (Please provide details from high school or special college)	Month / Year	Remarks		
	Work Experience (If you have any academic record as a researcher, etc. in a university, etc., please state it here.)				
	Remarks (Awards and penalties, or the period of school leave, etc.)				
Type of Funding (Foreign Students Only)	Privately Funded Funded by the Japanese Government Funded by Foreign Government		Application Qualification	*	

Note 1: DO NOT fill in section marked \*.

Note 2: USE black or blue pen only.

**Tokyo University of  
Agriculture and Technology  
Graduate School of  
Engineering  
(Doctoral Course)**

{ For October 2015 Enrollment }  
{ For April 2016 Enrollment }

Circle an applicable item

写真票

**Photograph Voucher**

<table border="1" style="margin: auto; padding: 10px;"> <tr> <td colspan="2" style="text-align: center;"><b>Affix Photo Here.</b></td> </tr> <tr> <td colspan="2" style="text-align: center;">Photo must be of top part of body, facing forward, without headwear, and taken within the last 3 months. (4cm x 3cm)</td> </tr> </table>		<b>Affix Photo Here.</b>		Photo must be of top part of body, facing forward, without headwear, and taken within the last 3 months. (4cm x 3cm)	
<b>Affix Photo Here.</b>					
Photo must be of top part of body, facing forward, without headwear, and taken within the last 3 months. (4cm x 3cm)					
Examinee's No.	* DC —				
Preferred Department					
Preferred Division					
Name					
Date of Birth	(dd) (mm) (yy) M / F				

Record of Attendance*	of	Attended /	
		Absent	

Note 1: DO NOT fill in section marked \*.

Note 2: USE black or blue pen only.

<p style="text-align: center;"><b>Tokyo University of Agriculture and Technology Graduate School of Engineering (Doctoral Course)</b></p> <p style="text-align: center;">受験票</p> <p style="text-align: center;"><b>Examination Voucher</b></p> <p style="text-align: center;">{ For October 2015 Enrollment } { For April 2016 Enrollment }</p> <p style="text-align: center;">Circle an applicable item</p>		
Examinee's No.	* DC —	
Preferred Department		
Preferred Division		
Name		
Date of Birth	(dd) (mm) (yy)	M / F
<p>(Remarks)</p> <ol style="list-style-type: none"> <li>1. This voucher must be placed on the desk during the academic achievement test in full view of the test supervisor.</li> <li>2. Keep this voucher safe, as it will be required for obtaining the Notice of Acceptance, etc on the day of announcement of successful applicants if you successfully pass the test.</li> <li>3. DO NOT fill in section marked *.</li> </ol>		

DO NOT SEPARATE.

# 修士論文の概要

## Outline of Master's Thesis

Examinee's No.	* DC —	Preferred Department		Name	
		Preferred Division			
Master's Thesis Title					
Outline of Master's Thesis					

Note: Applicants having completed a master's degree should provide a concise and specific outline of the thesis under 2,000 Japanese characters (500 words in English).

In addition, diagrams, charts, equations may also be added if necessary. Furthermore, if using a word processor, either print directly onto this form or print on an A4 size sheet in the same layout as this form.

DO NOT fill in section marked \*.

USE black or blue pen only.

# 研 究 計 画 書

## Research Proposal

Examinee's No.	* DC —	Preferred Department		Name	
		Preferred Division			
(Proposed) Research Topic					
Outline of (Proposed) Research Topic:					

Note: Use the format shown to provide a concise and specific outline, and no more than 2,000 characters. In addition, if using a word processor, either print directly onto this form or print on an A4 size sheet in the same layout as this form. If you are not student, also provide details of how you propose to conduct your research.  
DO NOT fill in section marked \*.

# 志 望 理 由 書

## Statement of Purpose

Preferred Department		Name		Examinee's No.	* DC —
Preferred Division					Reference No.

DO NOT fill in sections marked \*. The statement should be about 1,000 characters and may be made with a word processor using the same format.

Attached Form (1)

Result of qualification to apply	* Passed / Failed
----------------------------------	-------------------

Name of person in charge of the approval\* \_\_\_\_\_ (Signature)

### 資格認定申請書

Tokyo University of Agriculture and Technology Graduate School of Engineering  
 Application Form for Approval of Qualification to Apply for the Doctoral Course Entrance  
 Examination for October 2015 / April 2016 Enrollment

Preferred Department		Preferred Division		Examination No.	* DC —
Name		M / F	Current Occupation		
Date of Birth (Age)	(dd) (mm) (yy)		Current Address	TEL ( ) -	
Academic Record					
(dd) (mm) (yy)	Details				
Work Experience (Provide details that show the content of work involved, such as in research and development work)					
(dd) (mm) (yy)	Details				
Academic (Conference) and Social Activities					
(dd) (mm) (yy)	Details				

Note: If using a word processor, either print directly onto this form or print on an A4 size sheet in the same layout as this form.  
 DO NOT fill in section marked \*.



# 研究業績一覽

## List of Research Achievements

				<u>Name</u>	
Preferred Department		Preferred Division		Examinee's No.	* DC —
Title of academic paper, research presentation, report or patent.		Date of publication or presentation.	Name of publisher, journal, or conference.		Remarks (co-author(s) or co-presenter(s))

Note: Mention your achievements chronologically, and attach separated prints or copies for treatises.

If using a word processor, either print directly onto this form or print on an A4 size sheet in the same layout as this form.

DO NOT fill in section marked\*.

## 入学検定料納付確認票

### Confirmation Voucher of Entrance Examination Fee Payment

Preferred Department	
Preferred Division	
Examinee's No.	* DC —

(The Preferred Department and Preferred Division must be filled in by the applicant.)

**Affix the Certificate of  
Transfer Payment  
Receipt [for Submission  
to the University] here.**

(Note)

1. Invalid without dated stamp of the post office or Japan Post Bank.
2. Applicant's name and address must be filled in where designated on the Certificate of Transfer Payment Receipt.
3. Keep the *Payment Billing and Receipt Slip* safe and DO NOT affix it here.
4. The paid entrance examination fee is not refundable under any circumstances.

**Name & Address Voucher**

- Fill in your preferred department and division, post code, address and name in the designated fields in each of the 3 sections.
- Ensure your name and address are accurately provided. Notify the Admissions Section immediately if any changes take place after the submission of your application.
- DO NOT fill in the section marked \*.

宛名票	
Name & Address Voucher	
Preferred Department	
Preferred Division	
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Examinee's No.	* DC—
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Address	
Mr./Ms	
Examinee's No.	* DC—

For notice of acceptance.

Tear along here.

For mailing of entrance procedure information.

Spare copy.