Syllabus

International Master's Degree Program (2021-Spring Term)

(M40030050)Japanese Life Today[Japanese Life Today]

Subject name[English]	Japanese Life Too	day[Japanese Life T	oday]			
Schedule number	M40030050	Subject area	General	Required or	Elective	
			courses	elective		
Time of starting a course	Spring term	Day of the	Thu.5~5	Credit(s)	2	
		week,period				
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~	
Department Offered	Mechanical Engi	neering, Architect	ture and Civil	Beggining grade	M1	
	Engineering, Elec	trical and Electro	onic Information			
	Engineering, Con	nputer Science a	and Engineering,			
	Applied Chemistry	and Life Science				
Charge teacher name[Roman	穗積 直裕,大門	穗積 直裕, 大門 裕之, Lim Pang Boey, 岡田 浩, 岩佐 精二, 畑山 要介, 髙嶋 孝明, 蔡				
alphabet mark]	万里,中村 大介	,武藤 浩行,和身	え 司, 社河内 友,	里,齊藤 大樹,S	総合-教務委員	
	HOZUMI Naohiro, DAIMON Hiroyuki, Lim Pang Boey, OKADA Hiroshi, IWASA Seiji,					
	HATAYAMA Yos	uke, TAKASHIMA	Takaaki, SAI Ba	nri, NAKAMURA	Daisuke, MUTO	
	Hiroyuki, IZUMI Ts	sukasa, SHAKOUCH	I Yuri, SAITOH Tai	ki, Sougou kyoiku k	yomu Iin	
Numbering	GEN_LIB51325					

Objectives of class

In this series of lectures, the excellent experts of our university from different areas will impart to the engineering students highly interesting insider knowledge. The participants will get to know Japan of today from technical, economic and social viewpoints.

Contents of class

1. on-demand Hozumi "Japan's Modernization Suppoted by Electric Power"

Japan's modernization started in the middle of 19 th centry when a long period of isolation policy has been terminated. Her repid growth until now has been strongly supported by electric power. Now Japan's power supply is recognized as the best quality in the world. In the lecture, history and state of the art of Japan's electric power will be presented.

2. on-demand Daimon "Working in Japanese Company" Learn and discuss about working in Japanese company and what you should do for it.

3. on-demand Lim Pang Boey "Japanese Education System" Learn about the Japanese education system and what the life of a student is like in Japan?

4. on-demand Okada "History and Today of Measurement"

Measurement is a fundamental part not only in science and engineering but also in our daily life. Now, most of the measurement units are standardized in the world, however, we can find out unique aspects of the country from their measurement system. This class introduces history and today of measurement in Japan.

5. on-demand Iwasa "The Range of Organic Chemistry"

I will give a talk on the following subjects as one of scene of science and technology in Japan:

◆Organic Chemistry in Environment —Amazing Natural Products—

◆Development of Life Environment —Molecular Sensor as an Basic Technology in all of Science—

New Horizon of Catalytic Asymmetric Synthesis —C1 Asymmetric Catalyst-

6. on-demand Hatayama "Social problems in Japan"

Modern Japanese society faces many social problems derived from conflict between conventional institutions and social changes. This lecture especially focuses on problems related with isolation including "Hikikomori" which have broadly known as inherent problems in Japan.

7. on-demand Takashima "A global company doing business in Japan"

IBM, a global enterprise, is running business in Japan more than 75 years. A history and transformation of IBM's business in Japan are introduced. A comparative analysis of IBM with TOYOTA is provided to see and think about the differences. An insight that the lecturer got from the experience of working in IBM for 32 years is also shared.

8. on-demand Sai "The legal system of Intellectual Property in Japan"

In modern information society, technological and cultural reforms progress very quickly. And this progress has been based on what is known as intellectual rights such as patent right, trademark right, copyright, and other rights related to intellectual property.

Intellectual property issues cause a number of problems which have attracted much interest in the present society. This class explains the Japanese legal system of Intellectual property, in particular focusing on the legal protection of patent right and

copyright in Japan.

9. on-demand Nakamura "Cinema of Japan"

Japan is recognized as one of the most creative countries in the movie culture. This class presents the method of "shot analysis", referring to some Japanese classical films.

10. on-demand Muto "Fine Ceramics"

Fine Ceramics (also known as "advanced ceramics") are used to make components that require high levels of performance and reliability, such as advanced electronic devices and so on. In fact, Fine Ceramics support the latest technologies in diverse applications throughout modern society.

In this class, students will learn about "manufacture (Mono-zukuri)" in Japan.

11. on-demand Izumi "Modern literature in Japanese society"

Although book sales is decreasing in Japan recently, there are a lot of people who want to become a novelist. Why don't Japanese people buy books? Nevertheless, why do some people want to become a Novelist? Let's think about book market in Japan together and learn about Japanese modern literature.

12. on-demand Shakouchi "Cultural Differences in Animation Movies"

When some Japanese animation movies are translated into foreign languages, not only words but also other elements of the movies are changed. Why? What do all these changes mean? We would like to discuss the meaning of these changes in terms of the contextual differences in different cultures.

13. on-demand Saito "Earthquake safety of buildings in Japan" The purpose of this lecture is to understand the history of earthquake disasters in Japan and lessons learned from those disasters for the safety of buildings.

14. on-demand To be decided

Self Preparation and Review

Review each lecture and prepare for the next class with reference to the textbook. **Related** subjects

N/A

Notes for textbook

Papers(resume) will be distributed.

Notes for reference

N/A

Goals to be achieved

1) To understand a variety of Japanese cultural, social, and engineering perspectives.

2) To evaluate and criticize Japanese characteristics from interdisciplinary viewpoints.

3) To discuss and write global understanding.

Evaluation of achievement

Evaluation method: scoring will be proceeded by sum of each report evaluation.

Evaluation criteria:

Students who attend all classes will be evaluated as follows:

S: Achieved all goals and obtained total points of exam and reports, 90 or higher (out of 100 points).

A: Achieved all goals and obtained total points of exam and reports, 80 or higher (out of 100 points).

B: Achieved at least 65 % of goals and obtained total points of exam and reports, 70 or higher (out of 100 points). C: Achieved at least 55 % of goals and obtained total points of exam and reports, 60 or higher (out of 100 points).

Examination

試験期間中には何も行わない

None during exam period

Details of examination

N/A

Other information

N/A

Reference URL

N/A

Office hours

After each class.

Relations to attainment objectives of learning and education

Key words

Japan, Japanese, Culture, Religion, Politics & Economy, Technology

(M40030080)Principles of Japanese Conversation[Principles of Japanese Conversation]

Subject name[English]	Principles of Japanese Conversati	on[Principles of	lapanese Conversati	on]		
Schedule number	M40030080	Subject area	General courses	Required or	Elective	
		sugest and		elective		
Time of starting a	Spring term	Day of the	Wed 1~1	Gredit(s)	2	
course		week period	inoutri i	010010(0)	-	
Faculty	Graduate Program for Master's De	gree		Subject	1~	
radulty		Sel CC		grade	•	
Department Offered	Mechanical Engineering Architect	ure and Civil Eng	ineering Electrical	Beggining	M1	
Dopartinone Onorod	and Electronic Information Eng	nineering Comp	iter Science and	grade		
	Engineering Applied Chemistry and	d Life Science		Biado		
Charge teacher	村松 由起子 MURAMATSU Yukik					
name[Roman_alnhabet						
mark]						
Numbering	GEN L IB51425					
初級日本語会話の科目	です。日本人とコミュニケーションか	でさるよう, 创 秘レ	ベルの义法と語案を	と学びます。		
This is a Basic Japanes	e conversation class. You will learn	elementary Japa	nese grammar and v	vocabulary to sp	oeak Japanese	
on campus.						
Contents of class						
日本語初級の教科書「は	はかせ」を使います。					
1. 発音						
2 1 1						
3.1.2						
4 1 3						
5.1.4						
5. L. 4 6. L.5						
0. L.J						
7. L.0						
8. L./						
9. L.8						
10. L.9						
11. L10						
12. L.11						
13. L.12						
14. L.13 & 期末試験						
Studente will learn the f	allowing loopong in Jonangoo taytha	ak " Pasia Japan	aa far Studanta Hal	kaaa1"		
Students will learn the h	onowing lessons in Dapanese textbo	ok Dasic Japan	ese for Students Ha	Naser .		
1. Pronunciation of Japa	inese					
2. Lesson 1 Hajimemash	ite. Watashi wa Heren desu.					
3. Lesson 2 O-kuni wa c	lochira desuka.					
4. Lesson 3 Sore wa nar	n desuka.					
5. Lesson 4 Watashi wa	asa koohii o nomimasu.					
6. Lesson 5 Ima nan−ji d	esuka.					
7. Lesson 6 Ashita doko	e ikimasu ka.					
8. Lesson 7 Juu-gatsu ji	uu-go-nichi ni Nihon e kimashita. 8	Active learning				
9. Lesson 8 Kyooshitsu	ni dare ga imasu ka. & Active learr	ning				
10.Lesson 9 Yuubinkyok	u wa doko ni arimasu ka. & Active	learning				
11.Lesson 10 Nihon e ro	botto no kenkyuu ni kimashita. & A	Active learning				
12.Lesson 11 Fuji-san w	a kireina yama desu. & Active lear	ming				
13.Lesson 12 Ryokoo wa	a doo deshita ka. & Active learning					
14.Lesson 13 Shuumatsi	u ni nani oshitai desu ka. & Active	learning & Ter	m exam.			
Self Preparation and Re	view	<u> </u>				
語彙 Notes を予習して	おいてください。(90 分)					
毎回復習として Structu	res を覚えてください_ (90 分)					
Prenaration: Please read	Vocabulary and Notes in each less	on (90 min)				
Review/Please memories	"Structures" after each losser (00					
	Social arter each lesson.(90	11111./				
Related Subjects						

Basic Japanese Classe	es(にほんごほこ	(う)			
For more information,p	lease see the fo	oo) ollowing URL: http://ig	;nite.tut.ac.jp/cir,	/students/program/h	iokou.html
Textbook1	Book title	Basic Japanese for	[.] Students Hakas	e 1 (はかせ1)	ISBN
	Author	Yamazaki yoshiko, Doi mitsuru	Publisher	3A Corporation (スリーエーネッ トワーク)	Publish yəar
Notes for textbook					
¥2,000(祝扱さ) ¥2,000(+tax)					
Notes for reference					
特になし					
N/A Goals to be achieved					
1)日本語初級の文型	を理解することな	ができる。			
2)やさしい日本語を使	って日本人とコ	ミュニケーションができ	る。		
1)You will be able to u	nderstand basic	Japanese structures	and grammatical	items.	
2)You will be able to co	ommunicate wit	h Japanese people in	easy Japanese.		
宿題と練習40%.期ま	Refine R試験60%の割	合で評価する。			
S:達成目標をすべて	達成しており、た	かつテスト・レポートの	合計点(100 点満	i点)が 90 点以上	
A:達成目標を80%道	を成しており、か	つテスト・レポートの合	計点(100 点満)	点)が 80 点以上	
B: 達成目標を 70% 連	産成しており、か	つテスト・レポートの谷	計点(100 点満) → 占 (100 占港)	気)が 70 点以上 ち)が 60 占い ト	
0. 建成日標を00%更 Homework & Active lea	rning 40%. Exam	ination 60%	前黑(100 黑洞)	点///·00 点以上	
Evaluation criteria:	0 /				
Students who attend a	ll classes will be	e evaluated as follows	:		
S: Total points obtaine	d from exams a d from oxomo o	nd homework, 90 or hi	igher (out of 100	points).	
A: Total points obtaine B: Total points obtaine	d from exams a d from exams a	nd nomework, 80 or hi nd homework, 70 or hi	igher (out of 100 igher (out of 100	points).	
C: Total points obtaine	d from exams a	nd homework, 60 or h	igher (out of 100	points).	
Examination	\ \				
正期試験を実施(対面 Examination(Face to F))				
Details of examination					
特になし					
N/A					
Other information 性(これ)					
N/A					
Reference URL					
特になし					
N/A Office hours					
火曜日 13:00-13:30					
Tuesday 13:00-13:30					
Relations to attainmen	t objectives of	learning and education	n		
继续工资审查					
1波1版本子导攻 (D)グローバルに活躍	できるコミュニク	ーションカ			
グローバルに変化する	社会が抱える認	果題にチームとして協調	調して取り組む中	で、自らの考えや成	果を効果的に表現するコミュニ
ケーション力を身につい	けている。				
電気・電子情報工学専	攻 でき ^{スート}				
グローバルに変化する	ここるコミューク	ションカ 果題にチームとして協調	調して取り組む中	で,自らの考えや成	果を効果的に表現するコミュニ

ケーション力を身につけている。
情報·知能工学専攻
(D)グローバルに活躍できるコミュニケーションカ
グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ
ケーション力を身につけている。
応用化学·生命工学専攻
(D)グローバルに活躍できるコミュニケーションカ
グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ
ケーション力を身につけている。
建築・都市システム学専攻
(D)グローバルに活躍できるコミュニケーションカ
グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ
ケーション力を身につけている。
Graduate Program of Mechanical Engineering for Master's Degree
(D) Communication skills for global success
Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally
changing society in cooperation with other team members
Graduate Program of Electrical and Electronic Information Engineering for Master's Degree
(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members

Graduate Program of Computer Science and Engineering for Master's Degree

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

Graduate Program of Applied Chemistry and Life Science for Master's Degree

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

Graduate Program of Architecture and Civil Engineering for Master's Degree

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

Key words

Basic Japanese

(M41610010)Seminar on Mechanical Engineering I[Seminar on Mechanical Engineering I]

Subject name[English]	Seminar on Mech	anical Engine	ering I	Seminar on Mechar	ical Engineering I]			
Schedule number	M41610010	Subject are	a	Advanced	Required or	Required		
				Mechanical	elective			
				Engineering				
Time of starting a course	Year	Day of	the	Intensive	Credit(s)	4		
-		week,period	ł					
Faculty	Graduate Progran	n for Master's	Degre	ee	Subject grade	1~		
Department Offered	Mechanical Engine	eering			Beggining	M1, M2		
		grade						
Charge teacher name[Roman	S1系教務委員 1	kei kyomu Iin-	-S					
alphabet mark]								
Numbering	MEC_MAS61015	MEC_MAS61015						
Objectives of class								
The seminar aims to provide a br	oad understanding	of the mecha	nical e	ngineering available	for the master the	esis research of a		
student.								
The seminar aims to provide a br	oad understanding	of the mecha	nical e	ngineering available	for the master the	esis research of a		
student.								
Contents of class								
The class provides both of funda	amental knowledge	of his/her ma	aster t	hesis research wor	k and the most ad	vanced results in		
the related field by reading rese	earch papers and n	nonographs.	The co	ontents of the class	s depend on the s	supervisor. To be		
announced by individual superviso	ors.	. <i>/</i> .						
The class provides both of funda	amental knowledge	of his/her ma	aster t 	hesis research wor	k and the most ad	vanced results in		
the related field by reading rese	earch papers and n	nonographs.	The co	ontents of the class	s depend on the s	supervisor. To be		
announced by individual superviso	Ś.							
Different in each laboratory								
Different in each laboratory								
Different in each leberatory								
Different in each laboratory								
Notes for textbook	rerent in each laboratory							
Different in each laboratory								
Different in each laboratory								
Notes for reference								
N/A								
N/A								
Goals to be achieved								
To acquire fundamental knowledge of individual research fields.								
To acquire the ability to find problems, the ability to solve the problems, and the presentation skill.								
To acquire fundamental knowledg	To acquire fundamental knowledge of individual research fields.							
To acquire the ability to find problems, the ability to solve the problems, and the presentation skill.								
Evaluation of achievement								
Holding meetings to report tasks	for each laboratory	and compreh	nensive	ely evaluating the re	sults including con	tents,		
materials and attitudes.								
Grade levels are C(60% - less tha	n 70%), B(70- less t	than 80%), A(8	80% – I	ess than 90 %) and 3	S(90% or over).			
Holding meetings to report tasks	for each laboratory	and compreh	nensive	ely evaluating the re	sults including con	tents,		
materials and attitudes.								
Grade levels are C(60% – less tha	in 70%), B(70− less †	than 80%), A(8	80% – I	ess than 90 %) and 3	S(90% or over).			
試験期間中には何も行わない								
None during exam period								
N/A								
Other information								
N/A								
Beference UBI								

Different in each laboratory Different in each laboratory

Office hours

Different in each laboratory

Different in each laboratory

Relations to attainment objectives of learning and education

機械工学専攻

(C)高度な知識を統合的に活用できる実践力・創造力

機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 力を身につけている。

(C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。 (C2)機械工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立 案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。

(D) グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニケーションカを身につけている。

(D1)論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

Graduate Program of Mechanical Engineering for Master's Degree

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

Key words

Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and energy

Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and energy

(M41610020)Seminar on Mechanical Engineering II[Seminar on Mechanical Engineering II]

Subject name[English]	Seminar on Mech	nanical Engineering II	Seminar on Mecha	nical Engineeri	ing II]			
Schedule number	M41610020	Subject area	Advanced	Required	or	Required		
			Mechanical	elective	•	. toqui ou		
			Engineering	0.00010				
Time of starting a course	Year	Day of the	Intensive	Gredit(s)		2		
	1 our	week period	Inconorro			-		
Faculty	Graduate Progra	m for Master's Degre	e	Subject grad	ie i	2~		
Department Offered	Mechanical Engir	Mechanical Engineering M2						
	····	grade						
Charge teacher name[Roman	S1系教務委員1	kei kvomu Iin-S		0				
alphabet mark]								
Numbering	MEC_MAS61015	MEC MAS61015						
Objectives of class								
The seminar aims to provide a br	oad understanding	of the mechanical e	ngineering available	for the maste	er the	sis research of a		
student								
The seminar aims to provide a br	oad understanding	of the mechanical e	ngineering available	for the maste	er the	sis research of a		
student.								
Contents of class								
The class provides both of funda	mental knowledge	of his/her master t	hesis research wor	k and the mos	st adv	vanced results in		
the related field by reading rese	earch papers and	monographs. The co	ontents of the class	s depend on t	the s	upervisor. To be		
announced by individual supervise	ors.							
The class provides both of funda	amental knowledge	of his/her master t	hesis research wor	k and the mos	st adv	vanced results in		
the related field by reading rese	arch papers and	monographs. The co	ontents of the class	s depend on t	the s	upervisor. To be		
announced by individual superviso	ors.	0 1						
Self Preparation and Review	N							
Given by supervisors.								
Given by supervisors.								
Related subjects								
N/A								
N/A								
Notes for textbook								
Given by supervisors.	Given by supervisors.							
Given by supervisors.								
Notes for reference								
N/A								
N/A								
Goals to be achieved								
To acquire fundamental knowledg	e of individual rese	arch fields.						
To acquire the ability to find problems, the ability to solve the problems, and the presentation skill.								
To acquire fundamental knowledge of individual research fields.								
To acquire the ability to find problems, the ability to solve the problems, and the presentation skill.								
Evaluation of achievement								
Evaluated comprehensively by co	ntent, reports, con	siderations, etc. of p	resentation in each	laboratory.				
Grade levels are C(60% - less tha	ın 70%), B(70% – le:	ss than 80%), A(80% -	- less than 90%) and	S(90% or over	r).			
Evaluated comprehensively by co	ntent, reports, con	siderations, etc. of p	resentation in each	laboratory.				
Grade levels are C(60% - less tha	ın 70%), B(70% – le:	ss than 80%), A(80% -	- less than 90%) and	S(90% or over	r).			
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
N/A								
N/A								
Other information								
For any questions, contact your s	supervisor.							
For any questions, contact your s	supervisor.							
-								

Reference URL
N/A
N/A
Office hours
Contact your supervisor.
Contact your supervisor.
Relations to attainment objectives of learning and education
機械工学専攻
(C) 高度な知識を統合的に活用できる実践力・創造力
機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能
力を身につけている。
(C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。
(C2)機械工学およびその関連分野の広範囲の知識の連携により,研究開発に対する方法論を体得して,研究開発の計画を立
案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。
(D)グローバルに活躍できるコミュニケーションカ
グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ
ケーション力を身につけている。
(D1)論文, ロ頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーショ
ンする能力を身につけている。
(D2)チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を身
(E)最新の技術や社会環境の変化に対する探究心と持続的学習力
社会,環境,技術等の変化に対応して,生涯にわたって目発的に計画し字習する能力を身につけている。
Graduate Program of Mechanical Engineering for Master's Degree
(C) Practical and creative skills to utilize advanced knowledge in an integrated manner
Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize
such knowledge forproblem solving in an integrated manner
(CI) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related helds; and
to utilize such knowledge in an integrated manner
(G2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive
knowledge about mechanical engineering and related fields; to make plans for research and development and put them
(D) Communication skills for slobal success
(b) communication skills to effectively express one's own ideas and results while working on issues faced by a globally
changing society in cooperation with other team members
(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad
through papers, oral reports or information media
(D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements
through working cooperatively with other team members
(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social
environment
Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and
technology
Key words
Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and
energy
Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and
energy

(M41610030)Thesis Research on Mechanical Engineering Thesis Research	on Mechanical Engineering]
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		-			
Subject name[English]	Thesis Research	on Mechanical Engi	neering[Thesis Rese	earch on Mechanica	l Engineering]
Schedule number	M41610030	Subject area	Advanced	Required or	Required
			Mechanical	elective	
			Engineering		
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6
		week,period			
Faculty	Graduate Program for Master's Degree			Subject grade	1~
Department Offered	Mechanical Engineering			Beggining	M1, M2
				grade	
Charge teacher name[Roman	S1系教務委員,	1系各教員 1kei kyo	mu Iin−S, 1kei kakul	kyouin	
alphabet mark]					
Numbering	MEC_MAS61015	MEC_MAS61015			

Objectives of class

A research work of an unresolved engineering problem must be carried out in addition to class to become a leading engineer having creative and applied abilities that is education philosophy of department of mechanical engineering. Through carrying out the supervised research, active studying and researching are developed. By actively studying and researching, the research is developed furthermore. Finally, abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's in the process of the research work.

A research work of an unresolved engineering problem must be carried out in addition to class to become a leading engineer having creative and applied abilities that is education philosophy of department of mechanical engineering. Through carrying out the supervised research, active studying and researching are developed. By actively studying and researching, the research is developed furthermore. Finally, abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's in the process of the research work.

Contents of class

Follow instruction of supervisors.

Follow instruction of supervisors.

Self Preparation and Review

Follow instruction of supervisors. Follow instruction of supervisors.

Related subjects

The work is related to every classes which has been studied in graduate and undergraduate schools.

The work is related to every classes which has been studied in graduate and undergraduate schools.

Notes for textbook

N/A

N/A

Notes for reference

N/A

N/A

Goals to be achieved

Abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's ones in the process of the research work.

Abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's ones in the process of the research work.

Evaluation of achievement

Research work, tangible results, presentation and oral examination in presentation of master theses, etc. are evaluated comprehensively out of a hundred.

Grade levels are C(60% – less than 70%), B(70– less than 80%), A(80% – less than 90 %) and S(90% or over).

Research work, tangible results, presentation and oral examination in presentation of master theses, etc. are evaluated comprehensively out of a hundred.

 $Grade \ \text{levels are } C(60\% - \text{less than 70\%}), \ B(70 - \text{less than 80\%}), \ A(80\% - \text{less than 90\%}) \ and \ S(90\% \ \text{or over}).$

Examination

試験期間中には何も行わない

None during exam period

Details of examination

None during exam period None during exam period Other information For any questions, contact your supervisor. For any questions, contact your supervisor. **Reference URL** N/A N/A Office hours Contact your supervisor. Contact your supervisor. Relations to attainment objectives of learning and education (C)高度な知識を統合的に活用できる実践力・創造力 機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 カを身につけている。 (C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。 (C2)機械工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立 案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。 (D) グローバルに活躍できるコミュニケーションカ グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で,自らの考えや成果を効果的に表現するコミュニ ケーション力を身につけている。 (D1)論文, ロ頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーショ ンする能力を身につけている。 (D2)チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を身 につけている。 (E)最新の技術や社会環境の変化に対する探究心と持続的学習力 社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。 (C) Practical and creative skills to utilize advanced knowledge in an integrated manner Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner (C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner (C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice: and to create new technologies to solve problems (D) Communication skills for global success Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members (D1) Have the skills to effectively express and communicate one's own ideas as well as points in guestion at home and abroad through papers, oral reports or information media (D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members (E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and technology Kev words Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and energy

Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and energy

Subject name[English]	Thesis Research	Thesis Research on Mechanical Engineering[Thesis Research on Mechanical Engineering				
Schedule number	M41610030	Subject area	Advanced	Required or	Required	
			Mechanical	elective		
			Engineering			
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6	
		week,period				
Faculty	Graduate Program for Master's Degree			Subject grade	1~1	
Department Offered	Mechanical Engineering			Beggining	M1, M2	
				grade		
Charge teacher name[Roman	S1系教務委員, *	1系各教員 1kei kyoi	mu Iin−S, 1kei kakul	kyouin		
alphabet mark]						
Numbering	MEC_MAS61015					

Objectives of class

A research work of an unresolved engineering problem must be carried out in addition to class to become a leading engineer having creative and applied abilities that is education philosophy of department of mechanical engineering. Through carrying out the supervised research, active studying and researching are developed. By actively studying and researching, the research is developed furthermore. Finally, abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's in the process of the research work.

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Contents of class

Follow instruction of supervisors.

Follow instruction of supervisors.

Self Preparation and Review

Follow instruction of supervisors. Follow instruction of supervisors.

Related subjects

The work is related to every classes which has been studied in graduate and undergraduate schools.

The work is related to every classes which has been studied in graduate and undergraduate schools.

Notes for textbook

N/A

N/A

Notes for reference

N/A

N/A

Goals to be achieved

Abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's ones in the process of the research work.

Abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's ones in the process of the research work.

Evaluation of achievement

Research work, tangible results, presentation and oral examination in presentation of master theses, etc. are evaluated comprehensively out of a hundred.

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Research work, tangible results, presentation and oral examination in presentation of master theses, etc. are evaluated comprehensively out of a hundred.

 $Grade \ \text{levels are } C(60\% - \text{less than 70\%}), \ B(70 - \text{less than 80\%}), \ A(80\% - \text{less than 90\%}) \ and \ S(90\% \ \text{or over}).$

Examination

試験期間中には何も行わない

None during exam period

Details of examination

None during exam period None during exam period Other information For any questions, contact your supervisor. For any questions, contact your supervisor. **Reference URL** N/A N/A Office hours Contact your supervisor. Contact your supervisor. Relations to attainment objectives of learning and education 機械工学専攻 (C)高度な知識を統合的に活用できる実践力・創造力 機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 力を身につけている。 (C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。 (C2)機械工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立 案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。 (D) グローバルに活躍できるコミュニケーションカ グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ ケーション力を身につけている。 (D1)論文, ロ頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーショ ンする能力を身につけている。 (D2)チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を身 につけている。 (E)最新の技術や社会環境の変化に対する探究心と持続的学習力 社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。 Graduate Program of Mechanical Engineering for Master's Degree (C) Practical and creative skills to utilize advanced knowledge in an integrated manner Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner (C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner (C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice; and to create new technologies to solve problems (D) Communication skills for global success Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members (D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media (D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members (E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and technology Key words Mechanical engineering. Mechanical system design. Materials and manufacturing. System control and robotics. Environment and energy Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and energy

(M4161003T)Thesis Research on Mechanical Engineering[Thesis Research on Mechanical Enginee
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		-				
Subject name[English]	Thesis Research	Thesis Research on Mechanical Engineering[Thesis Research on Mechanical Engineering]				
Schedule number	M4161003T	Subject area	Advanced	Required or	Required	
			Mechanical	elective		
			Engineering			
			Lingineering			
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6	
		week,period				
Faculty	Graduate Program for Master's Degree Subject grade 2~2				2~2	
Department Offered	Mechanical Engine	Mechanical Engineering Be			M2	
	grade					
Charge teacher name[Roman	S1系教務委員, 1系各教員 1kei kyomu Iin-S, 1kei kakukyouin					
alphabet mark]						
Numbering	MEC_MAS61015	MEC_MAS61015				

Objectives of class

A research work of an unresolved engineering problem must be carried out in addition to class to become a leading engineer having creative and applied abilities that is education philosophy of department of mechanical engineering. Through carrying out the supervised research, active studying and researching are developed. By actively studying and researching, the research is developed furthermore. Finally, abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's in the process of the research work.

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Contents of class

Follow instruction of supervisors.

Follow instruction of supervisors.

Self Preparation and Review

Follow instruction of supervisors. Follow instruction of supervisors.

Related subjects

The work is related to every classes which has been studied in graduate and undergraduate schools.

The work is related to every classes which has been studied in graduate and undergraduate schools.

Notes for textbook

N/A

N/A

Notes for reference

N/A

N/A

Goals to be achieved

Abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's ones in the process of the research work.

Abilities of problem-consciousness, problem-solving, problem-questing, planning, creativity, judgement, responsibility, toughness, cooperativeness, presentation, and ethics are polished up at a higher level than undergraduate's ones in the process of the research work.

Evaluation of achievement

Research work, tangible results, presentation and oral examination in presentation of master theses, etc. are evaluated comprehensively out of a hundred.

Grade levels are C(60% – less than 70%), B(70– less than 80%), A(80% – less than 90 %) and S(90% or over).

Research work, tangible results, presentation and oral examination in presentation of master theses, etc. are evaluated comprehensively out of a hundred.

 $Grade \ \text{levels are } C(60\% - \text{less than 70\%}), \ B(70 - \text{less than 80\%}), \ A(80\% - \text{less than 90\%}) \ and \ S(90\% \ \text{or over}).$

Examination

試験期間中には何も行わない

None during exam period

Details of examination

None during exam period None during exam period Other information For any questions, contact your supervisor. For any questions, contact your supervisor. **Reference URL** N/A N/A Office hours Contact your supervisor. Contact your supervisor. Relations to attainment objectives of learning and education 機械工学専攻 (C)高度な知識を統合的に活用できる実践力・創造力 機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 力を身につけている。 (C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。 (D) グローバルに活躍できるコミュニケーションカ グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で,自らの考えや成果を効果的に表現するコミュニ ケーション力を身につけている。 (D1)論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーショ ンする能力を身につけている。 (D2)チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を身 につけている。 (E)最新の技術や社会環境の変化に対する探究心と持続的学習力 社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。 Graduate Program of Mechanical Engineering for Master's Degree (C) Practical and creative skills to utilize advanced knowledge in an integrated manner Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner (C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner (D) Communication skills for global success Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members (D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media (D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members (E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and technology Key words Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and energy Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and

energy

(M41610040)Seminar on Mechanical Engineering[Seminar on Mechanical Engineering]

Subject name[English]	Seminar on Mech	nanical Engineering	Seminar on Mechan	ical Engineering]		
Schedule number	M41610040	Subject area	Advanced	Required or	Required	
			Mechanical	elective		
			Engineering			
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6	
-		week,period				
Faculty	Graduate Progra	m for Master's Degr	ee	Subject grade	2~2	
Department Offered	Mechanical Engir	neering		Beggining	M2	
				grade		
Charge teacher name[Roman	S1系教務委員1	lkei kyomu Iin−S				
alphabet mark]						
Numbering	MEC_MAS51015					
Objectives of class						
The seminar aims to provide a br	oad understanding	of the mechanical	engineering availabl	e for the master th	esis research of a	
student.						
The seminar aims to provide a br	oad understanding	of the mechanical	engineering availabl	e for the master th	esis research of a	
student.						
Contents of class						
The class provides both of funda	amental knowledge	of his/her master	thesis research wo	rk and the most a	dvanced results in	
the related field by reading rese	earch papers and	monographs. The c	ontents of the cla	ss depend on the	supervisor. To be	
announced by individual supervise	ors.					
The class provides both of funda	amental knowledge	of his/her master	thesis research wo	rk and the most a	dvanced results in	
the related field by reading rese	earch papers and	monographs. The c	ontents of the cla	ss depend on the	supervisor. To be	
announced by individual superviso	ors.					
Self Preparation and Review						
Given by supervisors.						
Given by supervisors.						
Related subjects						
N/A						
N/A						
Notes for textbook						
Given by supervisors.						
Given by supervisors.						
N/A						
N/A						
		and Calif				
To acquire fundamental knowledg	e of individual rese	earch fields.	and the presentat	ion akill		
To acquire fundamental knowledge	e of individual rese	arch fields	, and the presentat	IOT SKIII.		
To acquire the ability to find prob	lems the ability to	solve the problems	and the presentat	ion skill		
I o acquire the addity to find problems, the addity to solve the problems, and the presentation skill.						
Evaluation of achievement						
Evaluation of achievement	where we are the series	aidauatiana ata af		h lahawatawa		
Evaluated comprehensively by co	π 70% $R/70\% = 1$	is uterations, etc. of $A(00)$	- less than 00%)	d S(00% or over)		
Evaluated comprehensively by as	ntent reports con	ss unan 00/0/, A(00%	iess triari 30%) an	h laboratory		
Grade levels are C(60% - less that	(1000, 10000, 1000, 10	ss than 80%) A(80%)	- less than 90%) an	d S(90% or over)		
Examination			.555 chair 55/0/ di			
試験期間中には何も行わない						
None during exam period	ลหลุ่มหาเราเราเขาปามมหา None during exam period					
Details of examination						
N/A						
N/A						
Other information						
For any questions, contact your s	supervisor.					
For any questions, contact your s	supervisor					

Reference URL
N/A
N/A
Office hours
Contact your supervisor.
Contact your supervisor.
Relations to attainment objectives of learning and education
機械工学専攻
(C) 高度な知識を統合的に活用できる実践力・創造力
機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能
力を身につけている。
(C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。
(C2)機械工学およびその関連分野の広範囲の知識の連携により,研究開発に対する方法論を体得して,研究開発の計画を立
案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。
(D)グローバルに活躍できるコミュニケーションカ
グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ
ケーション力を身につけている。
(D1)論文, ロ頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーショ
ンする能力を身につけている。
(D2)チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を身
(E)最新の技術や社会環境の変化に対する探究心と持続的学習力
社会,環境,技術等の変化に対応して,生涯にわたって目発的に計画し字習する能力を身につけている。
Graduate Program of Mechanical Engineering for Master's Degree
(C) Practical and creative skills to utilize advanced knowledge in an integrated manner
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such knowledge forproblem solving in an integrated manner
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(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad
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(D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements
through working cooperatively with other team members
(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social
environment
Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and
technology
Key words
Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and
energy
Mechanical engineering, Mechanical system design, Materials and manufacturing, System control and robotics, Environment and
energy

(M41610050)Internship[Internship]

Subject name[English]	Internship[Interns	hip]			
Schedule number	M41610050	Subject area	Advanced	Required or	Required
			Mechanical	elective	
			Engineering		
Time of starting a course	Year	Dav of the	Intensive	Credit(s)	0
-		week,period			
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	2~2
Department Offered	Mechanical Engine	eering		Beggining	M2
				grade	
Charge teacher name[Roman	S1系教務委員 1	kei kyomu Iin−S			
alphabet mark]					
Numbering	MEC_MAS51015				
Objectives of class					
Students are expected to address	ss problems in a sp	pecialized field in a	company or resear	ch institute. The c	objectives of this
subject are to experience praction	cal research and de	evelopment and to	cultivate the practi	cal problem-solving	g ability, planning
ability, and creativity.					
Students are expected to addres	ss problems in a sp	pecialized field in a	company or resear	ch institute. The o	objectives of this
subject are to experience practic	cal research and de	evelopment and to	cultivate the practi	cal problem-solving	g ability, planning
ability, and creativity.					
Contents of class			<i>(</i> 1		
In order to cultivate the practical	problem-solving at	pility, academic and	company/institution	nal supervisors will	provide practical
problems in a specialized field thr	ough close commur	nication.	<i>/</i> · ··· ··		
In order to cultivate the practical	problem-solving at	pility, academic and	company/institution	nal supervisors will	provide practical
problems in a specialized field thr	ougn close commur	lication.			
Sen Preparation and Review	a nuafauabla intaur	abin tania with ave	an isana kafana stan	ing it	
Students are expected to discuss	a preferable intern	iship topic with sup	ervisors before star	ling it.	
Peleted subjects	a preferable intern	iship topic with sup	ervisors before star	ling it.	
Notes for textbook					
Follow instructions provided by co	ompany/institutiona	al supervisors.			
Follow instructions provided by co	ompany/institutiona	al supervisors.			
Notes for reference					
N/A					
N/A					
Goals to be achieved					
While engaging practical activities	s in a company or i	research institution	for several months	, students are exp	ected to improve
the practical problem-solving abil	ity, planning ability,	and creativity as w	ell as an internation	al way of thinking.	
While engaging practical activities	s in a company or i	research institution	for several months	, students are exp	ected to improve
the practical problem-solving abil	ity, planning ability,	and creativity as w	ell as an internation	al way of thinking.	
Evaluation of achievement					
Comprehensive evaluation base	d on students' re	eports and evalua	tion sheets by ac	ademic and com	pany/institutional
supervisors.			FF 1.1 ()		
A: 80 or higher (out of 100 points)), B: 65 or higher (o	ut of 100 points) C:	55 or higher (out of	100 points)	/· ··· ·· ·
Comprehensive evaluation base	a on students re	eports and evalua	tion sheets by ac	ademic and comp	bany/institutional
A: 80 or higher (out of 100 points)) B: 65 or higher (o	ut of 100 points) C	55 or higher (out of	100 points)	
	, D. 00 of higher (0		of of flight (out of	roo pointes/	
Examination					
Examination 試験期間内には何もたい					
『小同大ガゴリートー」は「凹つ1」オンない None during even period					
Details of examination					
N/A					
N/A					
Other information					
N/A					
N/A					
Reference URL					

N/A
N/A

Office hours

N/A N/A

Relations to attainment objectives of learning and education

機械工学専攻

(D)グローバルに活躍できるコミュニケーションカ グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニ ケーションカを身につけている。 (D1)論文、ロ頭及び情報メディアを通じて、自分の論点や考えなどを国の内外において効果的に表現・発信し、コミュニケーショ ンする能力を身につけている。 (D2)チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を身 につけている。

Graduate Program of Mechanical Engineering for Master's Degree

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members

Key words

Internship

Internship

(M41630030)Applied	Mechanics of I	Natariale Annliad I	Mechanics of Ma	toriale]

Subject	Applied Mechanics of Materials[Applied Mechanics of Materials]					
name[English]						
Schedule number	M41630030		Subject area	Advanced	Required or	Elective
				Mechanical	elective	
				Engineering		
Time of starting a course	Spring1 term		Day of the week.period	Tue.2~2	Credit(s)	1
Faculty	Graduate Pro	ogram for Master's De	gree		Subject grade	1~
Department Offered	Mechanical E	ngineering			Beggining grade	M1
Charge teacher	足立 忠晴 A	DACHI Tadaharu				
name[Roman						
alphabet mark]						
Numbering	MEC_MAS530	025				
Objectives of class						
To understand mechan	nical performa	nces of structures.	and mechanical	behaviors of solid	and structures	. fundamental
mechanics of solid and	structure is	lectured. Especially.	mechanics of thi	in-walled structures	which is usefu	for practical
design of mechanical st	ructures is exp	lained in detail.				
Contents of class	·r					
1st week (face to face)						
Chapter 1 Introduction						
Chapter 2 Automobile S	Structures from	View of Solid Mecha	nics			
2nd week (face to face)						
Chapter 3 Fundamental	s of Structural	Mechanics				
Chapter 4 Forces and M	Ioments Applyi	ng to Structures				
3rd week (on-demand)						
Chapter 3 Fundamental	s of Structural	Mechanics				
Chapter 4 Forces and M	Ioments Applyi	ng to Structures				
4th week (on-demand)						
Assignment (Chapters 3	3 & 4)					
5th week (face to face)						
Chapter 5 Elementary M	lechanics of St	ructures				
Chapter 6 Mechanics of	F Thin-Walled S	tructures				
6th week (face to face)						
Chapter 6 Mechanics of	f Thin-Walled S	tructures				
7th week (on-demand)						
Assignment (Chapters 5	5&6)					
If there will be any changes regarding Toyohashi University of Technology Activity Restrictions Level for						
Preventing the Spread of	Preventing the Spread of Corona virus, the course content and evaluation of achievement are subject to change					
If there is any changes about a class schedule, I will inform you on Google Classroom or KYOMU JOHO SYSTEM.						
Self Preparation and Review						
To enhance a learning e	effect, students	are encouraged to r	efer to their text	box etc. To prepare	for and review t	he lecture for
around 90 minutes each	1.					
Problems given in eac	h chapter mus	t be solved by your	rself to understa	nd the contents of	each chapter.	By comparing
solutions of some proble	ems explained i	n the class, mechanic	s of solids will be	e understood deeply.		
Related subjects						
Mechanics of Materials,	Elasticity, Soli	d Mechanics				
Notes for textbook						
Lessons are given by us	sing handouts d	listributed in the class	S			
Reference1	Book title	A First Course in C	ontinuum Mechar	nics	ISBN	
	Author	Fung YC	Publisher	Prentice-Hall	Publish year	
Reference2	Book title	Mechanics of Engin	eering Materials		ISBN	
	Author	Benham PP	Publisher	Longman	Publish veer	
		Crawford R.L and		Longman	. abnon yoar	
		Armstrong CG				
Reference3	Book title	Classical and Comp	utational Solid M	echanics	ISBN	
	DOOK TITLE Glassical and Computational Solid Mechanics					

				1		
	Author	Fung YC and Pin T	Publisher	World Scientific	Publish year	2001
Reference4	Book title	Theory of Elasticit Vol.7	ty, Course of T	heoretical Physics	ISBN	
	Author	Landau L.D. and Lifshitz E.M.	Publisher		Publish year	1970
Reference5	Book title	Aircraft Structures	for Engineering S	Students	ISBN	
	Author	Megson THG	Publisher	Butterworth- Heinemann	Publish year	2007
Notes for reference						
Many references related	d to the class a	re published. Reading	the references i	s recommended by yo	ourself.	
Goals to be achieved						
To understand physical To deeply understand e beam.	meaning funda lementary meo	mental equations in so hanics of materials (s	olid mechanics. strength of mater	ials); tension of bar, [.]	torsion of axis a	ind bending of
To understand mechanic	cs of thin-walle	ed structures.				
To know concept of dyr	amic measure	ment of deformation.				
Evaluation of achieveme	ent					
S: Achieved all goals and	d obtained tota	I points of reports, 90) or higher (out o	f 100 points).		
A: Achieved 80% of goal	s and obtained	total points of report	s, 80 or higher (o	ut of 100 points).		
C: Achieved 70% of goal	s and obtained	total points of report	s, 70 or higher (o	ut of 100 points).		
Evamination	s and obtained	total points of report	s, oo or nigher (o	out of 100 points).		
レポートで実施						
By Report						
Details of examination						
Two assignments are co	onducted. Stud	ents must take every	assignment.			
Other information	Other information					
Prof Tadaharu Adachi, F	Room D-305, E	xtension phone 6664,	Email adachi@me	e.tut.ac.jp		
Reference URL	Reference URL					
http://solid.me.tut.ac.jp/solid/						
Office hours						
Anytime. Contact me by email before coming if possible.						
Relations to attainment objectives of learning and education						
(C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。 (C) Practical and creative skills to utilize advanced knowledge in an integrated and progressive manner Have advanced knowledge about mechanical engineering and related fields, and have ability to create and practice original techniques for problem solving by acquiring the research and development methodology that combines such knowledge in an extensive and organic manner.						

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner
Key words

Strength of materials, Mechanics of materials, solid mechanics, Structural mechanics, Thin-walled Structure

(M41630080)Science a	nd Technology	of Thin Films[Scien	ce and Technolog	y of Thin Films]		
Subject	Science and	Technology of Thin	Films[Science and	l Technology of Th	in Films]	
name[English]						
Schedule number	M41630080		Subject area	Advanced	Required or	Elective
				Mechanical	elective	
				Engineering		
Time of starting a	Spring2 term		Day of the	Fri.2~2	Credit(s)	1
course			week,period			
Faculty	Graduate Pro	ogram for Master's D	egree		Subject	1~
					grade	
Department Offered	Mechanical E	ngineering			Beggining	M1
a					grade	
Charge teacher	伊崎首伸山	ZAKI Masanobu				
Alphabet markj		025				
Numbering Objections of allow		025				
Objectives of class		6 III - II		.		
Understanding fundame	ental physics	of solid materials, s	such as structure	e of atoms, electi	ronic state of e	lectron, bonding,
symmetry of lattice, an	id scattering by	/ electron, and the e	effects of the light	and heat on the	energy state and	related physical
properties, electrical ar	id optical prope	erties.				
	Oh					
(Face-to-tace) [Ist]	Chap. I: Struc	cture of atoms	امتلائهما			
(on demand) 2nd] Cha	ap. I: Electron	and quantum numbe	er, ordital			
(on demand) 3rd] Chap	5. 2: Symmetry	on Lattice	a un da			
(on-demand) 4th] Cha	p.z structures		ounds			
(on demand) 5th] Chap	D. Z: Diπraction	and Structural fact	or			
(on demand) oth] Chap	D. Z, Reciprocal	space	nductoro			
(on demand) 7th] Chap	D. S. Electrical	property and semico	Dariadia avam (1)	5min)		
(on demand) our j Grap	5. 5. Optical pr	operty and optics &	Periodic exam. (4)	Jmin)		
Depending on the situa	tion of the CO	VID-19 pandemic, le	cture style will be	flexibly changed fr	rom face-to-face	to on-demand.
Self Preparation and R	eview					
Review every time afte	r the lecture a	nd prepare for next	lecture.Students n	nust provide 90 m	ninutes for prepar	ration and review
of each class.						
Related subjects						
N/A	<u> </u>					
Textbook1	Book title	Materials Science	and Engineering (9th Edition)	ISBN	978-
						1118319222
	Author	William D.	Publisher	Wiley	Publish	2014
		Callister, Jr.,			year	
		David G.				
		Rethwisch		I	1	
Notes for textbook						
It is desirable to purcha	ase the textboo	ok, but the textbook	can also be lent, s	o please consult v	vith the instructo	r.
The relating handouts v	will be given in	the class.				
Notes for reference						
N/A	N/A					
Goals to be achieved						
(1) Understand the elec	(1) Understand the electronic state of electron					
(2) Understand the sym	metry of lattic	e and scattering				
(3) Understand the elec	ctrical and opti	cal property of mate	rials.			
Evaluation of achievem	ent					
Evaluation basis: Stude	nts who attend	l all classes will be e	valuated as follow	S.		
Report:80%+Test:20%						
S: achieve all objective	s and total mar	ks of reports and ex	am. over 80.			
A: achieve all objectives and total marks of reports and exam. over ou.						
B: achieve an objectives and total marks of reports and exam. over 60.						
A: achieve all objective B: achieve 3 objectives	s and total man and total mark	ks of reports and ex s of reports and exa	am. over 80. am. over 70.			
A: achieve all objective B: achieve 3 objectives C: achieve 3 objectives	s and total man and total mark and total mark	ks of reports and ex s of reports and exa s of reports and exa	am. over 80. am. over 70. am. over 60.			

定期試験を実施(対面)
Examination(Face to Face)
Details of examination
N/A
Other information
Masanobu Izaki, D-505, m-izaki@me.tut.ac.jp
Reference URL
http://tf,metut,.ac.jp
Office hours
Please send e−mail in advance for appointment.
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education
Please send e-mail in advance for appointment. Relations to attainment objectives of learning and education Key words

(M41630220)Advanced Mechanical Systems Design II[Advanced Mechanical Systems Design II]

Subject name[English]	Advanced Mecha	nical Systems Desi	n II[Advanced Mech	anical Systems De	sign II]
Schedule number	M41630220	Subject area	Advanced	Required or	Elective
			Mechanical	elective	
			Engineering		
Time of starting a course	Spring term	Day of the	Mon.4~4	Credit(s)	2
		week,period			
Faculty	Graduate Progra	m for Master's Degr	ee	Subject grade	1~
Department Offered	Mechanical Engir	neering		Beggining	M1
				grade	
Charge teacher name[Roman	S1系教務委員1	lkei kyomu Iin−S			
alphabet mark					
Numbering	MEC_MAS53025				
Objectives of class					
This lecture aims to provide a br	oad understanding	of the mechanical	systems design avail	able for the maste	r thesis research
work of a student.		C (1) C (1			
This lecture aims to provide a br	oad understanding	of the mechanical	systems design avail	able for the maste	r thesis research
work of a student.					
	الحابيب وبرا المقسم مس	of his /have we are	ikania waasawala s	العبيب مطغلهم	المعمومة المعمومة
the related field by reading was	americal knowledge	or mis/ner master	inesis research wor	anu une most ad	variceu results in
appounced by individual supervise	aron papers and i	monographs. The C	oncents of the class	s depend on the s	aupervisor. To De
The class provides both of funds	ors. mental knowledge	of his /her master	basis research wor	and the most ad	vanced recults in
the related field by reading rese	arreh naners and i	monographs The o	ontents of the class	c depend on the s	upervisor. To be
announced by individual superviso	arch papers and i	monographs. The G		s depend on the s	supervisor. To be
Self Preparation and Review					
Follow instruction of supervisors					
Follow instruction of supervisors.					
Related subjects					
Follow instruction of supervisors.					
Follow instruction of supervisors.					
Notes for textbook					
Textbook or material will be made	available from the	e supervisors.			
Textbook or material will be made	e available from the	e supervisors.			
Notes for reference					
N/A					
N/A					
Goals to be achieved	Goals to be achieved				
To acquire fundamental knowledg	e of individual rese	earch fields.			
To acquire the ability to find problems, the ability to solve the problems and the presentation skill.					
To acquire fundamental knowledg	e of individual rese	earch fields.			
To acquire the ability to find prob	lems, the ability to	solve the problems	and the presentatio	n skill.	
Evaluation of achievement					
Coursework, presentation and/or	report.				
Grade levels are C(60% - less tha	in 70%), B(70- less	than 80%), A(80% -	ess than 90 %) and \$	S(90% or over).	
Coursework, presentation and/or	report.				
Grade levels are C(60% - less tha	in 70%), B(70- less	than 80%), A(80% -	ess than 90 %) and S	S(90% or over).	
Examination					
試験期間中には何も行わない					
None during exam period					
Details of examination					
N/A N/A					
Other informatic=					
For any questions, contact your	upervisor				
For any questions, contact your s	supervisor.				
Reference IIRI	50 PCI VISUI.				

Ν	/Α
Ν	/A

Office hours

Contact your supervisor.

Contact your supervisor.

Relations to attainment objectives of learning and education

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice; and to create new technologies to solve problems

Key words

mechanical system design mechanical system design

(M41630240)Advanced Materials and Manufacturing Process II[Advanced Materials and Manufacturing Process II]

Subject name[English]	Advanced Materi	als and Manud	factur	ing Process II[Ad	vanced Materials	nd Manufacturing
	Process II]					
Schedule number	M41630240 Subject area Advanced		Required or	Elective		
			-	Mechanical	elective	
				Engineering		
Time of starting a course	Spring term	Day of	the	Tue.4~4	Credit(s)	2
		week,period				
Faculty	Graduate Program	n for Master's	Degre	e	Subject grade	1~
Department Offered	Mechanical Engin	eering			Beggining	M1
					grade	
Charge teacher name[Roman	S1系教務委員1	kei kyomu Iin-	S			
alphabet mark]						
Numbering	MEC_MAS54025					
Objectives of class						
This lecture aims to provide a br	oad understanding	of the materia	ls and	l manufacturing pr	ocess available for t	the master thesis
research work of a student.						
This lecture aims to provide a br	oad understanding	of the materia	ls and	l manufacturing pr	ocess available for t	the master thesis
research work of a student.						
Contents of class						
The class provides both of funda	amental knowledge	of his/her ma	ster t	hesis research wo	ork and the most ad	vanced results in
the related field by reading rese	earch papers and r	nonographs. T	he co	ontents of the cla	ss depend on the s	supervisor. To be
announced by individual supervise	ors.	 //				
The class provides both of funda	amental knowledge	of his/her ma	ster t '	hesis research wo	ork and the most ad	vanced results in
the related field by reading rese	earch papers and r	nonographs. T	he co	ontents of the cla	ss depend on the s	supervisor. To be
announced by individual supervise	ors.					
Sen Preparation and Review						
Follow instruction of supervisors.						
Follow instruction of supervisors.						
Follow instruction of supervisors.						
Notes for textback						
Textbook or material will be made	a available from the	supervisors				
Textbook or material will be made	available from the	supervisors.				
Notes for reference		Super VISUES.				
N/A						
N/A						
Goals to be achieved						
To acquire fundamental knowledge	e of individual rese	arch fields.				
To acquire the ability to find prot	lems, the ability to	solve the prob	olems	and the presentat	ion skill.	
			-			
To acquire fundamental knowledge of individual research fields						
To acquire the ability to find problems, the ability to solve the problems and the presentation skill						
Evaluation of achievement						
Evaluation of achievement.						
Grade levels are C(60% - less than 70%) B(70- less than 80%) A(80% - less than 90%) and S(90% or over)						
Coursework, presentation and/or report.						
Grade levels are $C(60\% - less$ than 70%), B(70- less than 80%). A(80% - less than 90 %) and S(90% or over).						
試験期間中には何も行わない						
None during exam period						
Details of examination						
N/A						
N/A						
Other information						
For any questions, contact your supervisor.						
For any questions, contact your supervisor.						
Reference URL	Reference URL					

N/A
N/A

Office hours

Contact your supervisor.

Contact your supervisor.

Relations to attainment objectives of learning and education

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice; and to create new technologies to solve problems

Key words

Materials, Manufacturing Process Materials, Manufacturing Process

(M41630260)Advanced System, Control and Robotics II[Advanced System, Control and Robotics II]

Subject name[English]	Advanced System	n, Control and	l Robo	tics II[Advanced Sys	stem, Control and	Robotics II]	
Schedule number	M41630260	Subject are	a	Advanced	Required or	Elective	
				Mechanical	elective		
				Engineering			
Time of starting a course	Spring term	Day of	the	Thu.4~4	Credit(s)	2	
E It.	0 1 1 5	week,perio	dt		0.11	-	
Faculty	Graduate Progran	n tor Master's	s Degre	e	Subject grade	I~ M1	
Department Onered	wechanical Engine	eering			peggining grade		
Charge teacher name[Roman	S1系教務委員 1	kei kyomu Iin	-S		6. uu	L.	
alphabet mark]		,					
Numbering	MEC_MAS55025						
Objectives of class							
This lecture aims to provide a bro	oad understanding o	of the control	and ro	botics available for	the master thesis	research work of	
a student.							
This lecture aims to provide a bro	oad understanding o	of the control	and ro	botics available for	the master thesis	research work of	
a student.							
Contents of class							
The class provides both of funda	amental knowledge	of his/her m	aster t	hesis research worl	and the most ad	vanced results in	
the related field by reading rese	earch papers and n	nonographs.	The co	ntents of the class	depend on the s	supervisor. To be	
The close provides both of finder	ors.	of his /har	ooten +	hoolo roocarah ward	and the meet	wanaad kasulta in	
the related field by reading race	americal knowledge	or riis/ner ma	aster t The co	nesis research work	anu une most ad	supervisor To bo	
announced by individual supervise	ors	nonographs.		meents of the class			
Self Preparation and Review							
Follow instruction of supervisors.							
Follow instruction of supervisors.							
Related subjects							
Follow instruction of supervisors.							
Follow instruction of supervisors.							
Notes for textbook							
Textbook or material will be made	e available from the	supervisors.					
Textbook or material will be made	e available from the	supervisors.					
Notes for reference							
N/A N/A							
Goals to be achieved							
To acquire fundamental knowledge	e of individual rese	arch fields					
To acquire the ability to find prob	lems, the ability to	solve the pro	blems	and the presentatio	n skill.		
To acquire fundamental knowledg	e of individual resea	arch fields.					
To acquire the ability to find prob	lems, the ability to	solve the pro	blems	and the presentatio	n skill.		
	-						
Evaluation of achievement							
Coursework, presentation and/or report.							
Grade levels are C(60% – less than 70%), B(70– less than 80%), A(80% – less than 90 %) and S(90% or over).							
Coursework, presentation and/or report.							
Grade levels are C(60% - less than 70%), B(70- less than 80%), A(80% - less than 90 %) and S(90% or over).							
試験期间中には何も行わない							
None during exam period							
N/A							
Other information							
For any questions, contact your s	supervisor.						
For any questions, contact your s	supervisor.						
Reference URL							
N/A							
N/A							

Office hours Contact your supervisor. Contact your supervisor.

Relations to attainment objectives of learning and education

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice; and to create new technologies to solve problems

Key words

System, Control, Robotics System, Control, Robotics

(M41630280)Advanced Energy and Environmental Engineering II[Advanced Energy and Environmental Engineering II]

Subject pame[English]	Advanced Energy	and Environment	tal Engineering II	Advanced Energy	d Environmente!		
Subject name[English]		y anu Environmen	tai Erigirieering IIL	Auvanceu Energy ar	iu Erivironmental		
Sebedule number		Subject and	Advopsed	Doguired	Floative		
Schedule number	19141030280	Subject area	Auvanced	rtequirea or	Elective		
			Engine	81801148			
Time of starting a source	Spring torm	Day of the		Credit(a)	2		
Time of starting a course	opring term	week period	F11.4***4	Urealt(s)	4		
Faculty	Graduate Program	n for Master's Dea	ree	Subject grade	1~		
Department Offered	Mechanical Engin	eering		Reggining	M1		
				grade			
Charge teacher name[Roman	S1系教務委員1	kei kyomu Iin-S		e	I		
alphabet mark]							
Numbering	MEC_MAS56025						
Objectives of class							
This lecture aims to provide a bro	oad understanding (of the energy and	environmental engi	neering available for t	the master thesis		
research work of a student.							
This lecture aims to provide a bro	oad understanding o	of the energy and	environmental engi	neering available for t	the master thesis		
research work of a student.	5		0	-			
Contents of class							
The class provides both of funda	mental knowledge	of his/her master	thesis research w	ork and the most ad	vanced results in		
the related field by reading rese	arch papers and r	nonographs. The o	ontents of the cla	ass depend on the s	supervisor. To be		
announced by individual superviso	ors.						
The class provides both of funda	mental knowledge	of his/her master	thesis research w	ork and the most ad	vanced results in		
the related field by reading rese	arch papers and r	nonographs. The o	ontents of the cla	ass depend on the s	supervisor. To be		
announced by individual supervise	ors.						
Self Preparation and Review							
Follow instruction of supervisors.							
Follow instruction of supervisors.							
Related subjects							
Follow instruction of supervisors.							
Follow instruction of supervisors.							
Notes for textbook							
Textbook or material will be made	available from the	supervisors.					
Textbook or material will be made	available from the	supervisors.					
Notes for reference							
N/A							
N/A							
Goals to be achieved							
To acquire fundamental knowledg	e of individual rese	arch fields.					
To acquire the ability to find prob	lems, the ability to	solve the problem	s and the presenta	tion skill.			
To acquire fundamental knowledg	e of individual rese	arch fields.					
To acquire the ability to find prob	lems, the ability to	solve the problem	s and the presenta	tion skill.			
Evaluation of achievement							
Coursework, presentation and/or report.							
Grade levels are C(60% - less than 70%), B(70- less than 80%), A(80% - less than 90 %) and S(90% or over).							
Coursework, presentation and/or report.							
Grade levels are C(60% - less than 70%), B(70- less than 80%), A(80% - less than 90 %) and S(90% or over).							
Examination							
試験期間中には何も行わない							
None during exam period							
Details of examination							
N/A							
N/A							
Other information							
For any questions, contact your supervisor.							
For any questions, contact your s	supervisor.						
Reference URL							
N/A							

N/A

Office hours

Contact your supervisor.

Contact your supervisor.

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力

機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 力を身につけている。

(C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。 (C2)機械工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立 案および実践し,課題解決のための新たな技術を創造できる能力を身につけている。

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about mechanical engineering and related fields; to make plans for research and development and put them intopractice; and to create new technologies to solve problems

Key words

Energy, Environment

Energy, Environment

(M41630340)Advances	in Material Science and Ma	nufacturing[Advances in	Material Science	and Manufacturin	g			
Subject	Advances in Material Scie	nce and Manufacturing[A	dvances in Mate	rial Science and M	[anufacturing]			
name[English]				П				
Schedule number	M41630340	Subject area	Advanced Mechanical Engineering	Required or elective	Elective			
Time of starting a	Spring term	Day of the	Fri.2~3	Credit(s)	2			
Faculty	Graduate Program for Mas	ster's Degree		Subject	2~			
Department Offered	Mechanical Engineering			Beggining	M2			
Charge teacher name[Roman	伊﨑 昌伸,戸高 義一IZ							
Numbering	MEC MAS54025							
Objectives of class Understand mechanical perspective, and also of mechanisms to control	properties of structural ma chemical composition and h mechanical properties.	terials, such as lattice de eat treatment procedure	fects, strength a of steels and n	nd fracture, from on-ferrous mater	a microstructural ials including the			
Understanding fundame symmetry of lattice, an properties, electrical ar Contents of class	ental physics of solid mate d scattering by electron, an d optical properties.	erials, such as structure ad the effects of the light	of atoms, elec and heat on the	tronic state of e energy state and	electron, bonding, related physical			
[race to face] [01st] [on-demand] [02nd] [face to face] [03rd] [on-demand] [04th] [face to face] [05th] [on-demand] [06th] [face to face] [07th]	Chap. 1 4: Introduction of Chap. 4: Crystal structures Chap. 6: Imperfections in r Chap. 7: Diffusion in metals Chap. 8, 9: Mechanical pro Chap. 9, 10: Strengthening Chap. 11, 12: Phase Diagra	or materials science and s in metals and alloys metals and alloys s and alloys operties, Strengthening m mechanisms, Failure in m ams, Phase transformatio	echanisms in met echanisms in met etals and alloys ns in metals and	tals and alloys alloys	netais and alloys			
[face to face] [08th] [on-demand] [09th] [face to face] [10th] [on-demand] [11th] [face to face] [12th] [on-demand] [13th] [face to face] [14th]	Chap. 1 : Structure of ator Chap. 1: Electron and quan Chap. 2: Symmetry on Lat Chap. 2: Diffraction and Str Chap. 2, Reciprocal space Chap. 18: Electrical property Chap. 19: Optical property	ms tum number, orbital tice ructural factor ty and semiconductors r and optics						
 If there will be any Spread of Corona virus the course content and * If there is any change [on-demand] : You ca [face to face] : Regula 	changes regarding Toyohas , l evaluation of achievement es about a class schedule, I in take the class whenever y ar face to face class.	hi University of Technol are subject to change. will inform you on Google you want.	ogy Activity Res Classroom or K ^v	trictions Level fo YOMU JOHO SYS	r Preventing the TEM.			
Beview every time after	eview r the lecture (Q0min) and ar	enare for next lecture (0)	Jmin)					
Related subjects	and pr	opare for flext lecture (9						

Textbook1	Book title	Materials Science and Engineering (9th Edition)			ISBN	978-	
							1118319222
	Author	William	D.	Publisher	Wiley	Publish	2014
		Callister, Callister,	Jr., C			year	
		Rethwisch	G.				
Notes for textbook		Roamicon					
It is desirable to purch	ase the textbo	ok, but the textbo	ok	can also be lent,	so please consult	t with the instrue	otor.
The relating handouts	will be given in	the class.					
It is desirable to purch	ase the textbo	ok, but the textbo	ok	can also be lent,	so please consult	t with the instruc	ctor.
Notes for reference	will be given in	the class.					
Goals to be achieved							
(1) Understand the cr	ystal structures	and imperfection	s in	metals and allo	ys.		
(2) Understand the ba	sics of mechani	cal properties and	l sti	rengthening med	hanisms of metals	and alloys.	
(3) Understand the fai	lure in metals a	nd alloys. Ind phase transform	nati	ions in metals a	ad allove		
			nau		ia alloys.		
(1) Understand the ele	ectronic state o	f electron					
(2) Understand the sy	mmetry of lattic	e and scattering					
(3) Understand the ele	ectrical and opti	cal property of m	ater	ials.			
Evaluation of achiever	nent						
Evaluation means : O	uin and Danaut						
Evaluation means : Q	uiz and Report. Idents will be ev	aluated as follows	s.				
S: Achieve all objectiv	es and total ma	rks of quiz and re	por	ts are 90 or high	ner (out of 100 poi	ints).	
A: Achieve all objectiv	es and total ma	arks of quiz and re	por	ts are 80 or higł	ner (out of 100 po	ints).	
B: Achieve 3 objective	es and total mar	ks of quiz and rep	ort	s are 70 or high	er (out of 100 poir	nts).	
G: Achieve 3 objective	es and total mar	ks of quiz and rep	ort	s are ou or nigh	er (out of 100 poir	115).	
Evaluation means : Q	uiz and Report.						
Evaluation basis : Stu	Idents will be ev	aluated as follows	S.				
S: Achieve all objectives and total marks of quiz and reports are 90 or higher (out of 100 points).							
A: Achieve all objectives and total marks of quiz and reports are 80 or higher (out of 100 points).							
C: Achieve 2 objectives and total marks of quiz and reports are 70 or higher (out of 100 points).							
Examination		· · · · · · · · · · · · · · · · · · ·					
試験期間中には何も行	うわない						
None during exam per	iod						
N/A							
Other information							
D-603, ext.6704, todal	ka@me.tut.ac.jp						
D-505, ext.6694,m-iza	ki@me.tut.ac.jp						
http://martens.me.tut	ac in/						
http://tf,metut,.ac.jp							
Office hours							
Please send e-mail in	advance for ap	pointment.					
Please send e-mail in	advance for ap	pointment.					
relations to attainme	nt objectives of	iearning and edu	cati	on			

機械工学専攻 (C)高度な知識を統合的に活用できる実践力・創造力 機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 力を身につけている。 (C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

Graduate Program of Mechanical Engineering for Master's Degree

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Have advanced knowledge about mechanical engineering and related fields and have the practical and creative skills to utilize such knowledge forproblem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

Key words

metal / alloy, crystal structure, microstructure, lattice defect, strengthening mechanism, phase transformation, electron, quantum number, semiconductor, optics
(M41630430)Microstruc	ture and Prop	erties of Structural	Materials[Microst	ructure and Propert	ies of Structura	al Materials]		
Subject	Microstructu	re and Properties	of Structural Mat	erials[Microstructur	re and Properti	es of Structural		
name[English]	Materials]							
Schedule number	M41630430		Subject area	Advanced	Required or	Elective		
				Mechanical	elective			
				Engineering				
Time of starting a	Spring1 term		Day of the	Fri.3~3	Credit(s)	1		
course			week,period					
Faculty	Graduate Pro	ogram for Master's [Degree		Subject	1~		
		grade						
Department Offered	Mechanical E	ngineering			Beggining	M1		
					grade			
Charge teacher	尸局 義一Ⅰ	ODAKA Yoshikazu						
name[Roman								
alphabet mark]		005						
Numbering	MEC_MAS54	025						
Objectives of class								
Understand mechanical	properties of s	structural materials,	, such as lattice de	efects, strength and	fracture, from a	a microstructural		
perspective, and also c	hemical comp	osition and heat tre	eatment procedure	e of steels and non	-ferrous materi	als including the		
mechanisms to control	mechanical pro	operties.						
Contents of class	~							
[face to face] [01st]	Chap. 1 4: I	ntroduction of mate	erials science and	engineering, Crysta	l structures in n	netals and alloys		
[on-demand] [02nd]	Chap. 4: Crys	tal structures in me	etals and alloys					
[face to face] [03rd]	Chap. 6: Impe	erfections in metals	and alloys					
[on-demand] [04th]	Chap. /: Diffus	sion in metals and a	lloys					
[face to face] [05th]	Chap. 8, 9: M	echanical properties	s, Strengthening m	echanisms in metals	s and alloys			
[on-demand] [06th]	Chap. 9, 10: S	trengthening mecha	inisms, Failure in m	netals and alloys				
[face to face] [0/th]	Chap. 11, 12:	Phase Diagrams, Pl	hase transformation	ons in metals and all	oys			
* If there will be any o	changes regard	ding Toyohashi Univ	versity of Technol	logy Activity Restri	ctions Level fo	r Preventing the		
Spread of Corona virus,								
the course content and	evaluation of a	achievement are sul	bject to change.					
* If there is any change	s about a class	s schedule, I will info	orm you on Google	e Classroom or KYO	MU JOHO SYS	TEM.		
【on-demand】: You ca	n take the clas	s whenever you wa	nt.					
[face to face] : Regula	r face to face	class.						
Self Preparation and Re	eview							
Review every time after	r the lecture (9	0min), and prepare	for next lecture (9	0min).				
Related subjects								
N/A								
Textbook1	Book title	Materials Science	and Engineering (9th Edition)	ISBN	978-		
			-	T		1118319222		
	Author	William D.	Publisher	Wiley	Publish	2014		
		Callister, Jr.,	·		year			
		David G.						
		Rethwisch						
Notes for textbook								
It is desirable to purcha	ise the textboo	k, but the textbook	can also be lent, s	so please consult w	ith the instructo	or.		
The relating handouts w	vill be given in t	the class.						
Notes for reference								
N/A								
Goals to be achieved								
(1) Understand the crys	stal structures	and imperfections i	n metals and alloys	S.				
(2) Understand the basi	cs of mechanic	cal properties and s	trengthening mech	anisms of metals ar	nd alloys.			
(3) Understand the failu	re in metals ar	nd alloys.						
(4) Understand the phase	se diagrams an	d phase transforma	tions in metals and	d alloys.				

Evaluation of achievement

Evaluation means : Quiz and Report.

Evaluation basis : Students will be evaluated as follows.

- S: Achieve all objectives and total marks of quiz and reports are 90 or higher (out of 100 points).
- A: Achieve all objectives and total marks of quiz and reports are 80 or higher (out of 100 points).

B: Achieve 3 objectives and total marks of quiz and reports are 70 or higher (out of 100 points).

C: Achieve 3 objectives and total marks of quiz and reports are 60 or higher (out of 100 points).

Examination

試験期間中には何も行わない

None during exam period

Details of examination

N/A

Other information D-603, ext.6704, todaka@me.tut.ac.jp

Reference URL

http://martens.me.tut.ac.jp/

Office hours

Please send e-mail in advance for appointment.

Relations to attainment objectives of learning and education

機械工学専攻 (C)高度な知識を統合的に活用できる実践力・創造力 機械工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能 力を身につけている。 (C1)機械工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

Graduate Program of Mechanical Engineering for Master's Degree

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(C1) Have the skills to voluntarily acquire theories and applied knowledge about mechanical engineering and related fields; and to utilize such knowledge in an integrated manner

Key words

 $\mathsf{metal} \ / \ \mathsf{alloy}, \ \mathsf{crystal} \ \mathsf{structure}, \ \mathsf{microstructure}, \ \mathsf{lattice} \ \mathsf{defect}, \ \mathsf{strengthening} \ \mathsf{mechanism}, \ \mathsf{phase} \ \mathsf{transformation}$

(M41630440)Precision Mechatronics[Precision Mechatronics]

Subject name[English]	Precision Mechatronics[Precision	Mechatronics]			
Schedule number	M41630440	Subject area	Advanced	Required or	Elective
			Mechanical	elective	
			Engineering		
Time of starting a	Spring1 term	Day of the	Thu.2~2	Credit(s)	1
course		week,period			
Faculty	Graduate Program for Master's De	egree		Subject	1~
				grade	
Department Offered	Mechanical Engineering			Beggining	M1
				grade	
Charge teacher	佐藤 海二 SATO Kaiji				
name[Roman alphabet					
mark]					
Numbering	MEC_MAS55025				
Objectives of class					
本講義を履修することに	よって,以下の能力を修得する.				
1) 精密/超精密運動の	ための機構の基礎知識を身につけ	、その精度劣化要	肉を理解できる。		
0) 蛙肉 / 切蛙肉 雷動の		はの性質を明知り		- レがでキマ	
2/ 相省/ 迫有省理動の	いこののセノリの基本原理や利仰力	広切注貝を理解し	,迴刎に迭択りる。	_こかできる.	
Students will acquire the	e following skills by taking this cours	e.			
1) Learn basic knowled	lge of machines for precision and	ultra-precision r	motions, and gain a	an understandin	g of precision
deterioration factors.					
2) Gain an understandir	ng of basic principles of sensors ar	nd properties of a	control methods for	precision and	ultra-precision
motions, and be able to	choose appropriately.				
Contents of class					
[予定]					
(対面) 第1週(回)精密機械基礎				
(オンデマンド) 第 2 週	(回) 精密・超精密機構の構成	と特性(動作範囲	が狭い機構)		
(対面) 第3週(回) 精密・超精密機構の構成と	:特性(動作範囲カ	「広い機構)		
(オンデマンド) 第4週	(回) 精密・超精密機械システ.	ムのための測定技	5術		
(対面) 第5週(回) 精密・超精密機械システム	のための制御技術	桁		
(オンデマンド) 第6週	(回) 事例<1> 露光装置	- 役割と性能・構	構成の変遷 -		
(オンデマンド) 第7週	(回) 事例<2> 三次元測定	機 ー 役割と特	徴 —		
授業実施形態が変更に	なる場合は、GoogleClassroom や教	務情報			
システムより通知する。					
[Plans]					
(face to face) 1st week	/time Introduction				
(on-demand) 2nd wee	ek/time Design of precision/ultra-	precision mechan	isms with a short w	orking range	
(face to face) 3rd week	/time Design of precision/ultra-p	recision mechanis	ms with a long work	ing range	
(on-demand) 4th wee	k/time Measurement techniques	for precision/ultra	-precision motion s	systems	
(face to face) 5th week	/time Control techniques for prec	ision/ultra-precis	ion motion systems		
(on-demand) 6th wee	k/time Case study Exposure too	Is – Aim and tran	sition of performan	ce and configura	ation
(on-demand) 7th wee	k/time Case study Coordinate m	easuring machine	 Aim and features 		
If there is any changes a	about a class schedule, I will inform	you on			
Google Classroom or KY	OMU JOHO SYSTEM.				
Self Preparation and Re	view				
毎回の講義内容を復習	するとともに、次回の内容についてテ	キスト等を参考に	予習してくること	90分)	
本講義に関連する書籍	文献,展示会を,自分で調べ情報の	の収集と理解に努	めること. (90 分)		
Students are required to	prepare for and review each lectur	e contents based	on handouts provid	ed.	
Students are required to	o make an effort to collect and unde	erstand the inform	ation and the knowl	edge from texts	, literature and
exhibitions regarding this	s lecture themselves.				
To prepare for and revie	w the lecture for around 90 minutes	s each.			
Related subjects					
メカトロニクス,制御工学	計測工学,機械設計,機械要素				

Mechatronics Cont	rol Engineering, Me	asurement and Instrun	nentation, Mach	nine Design, Mechanica	al Elements	
Notes for textbook						
教科書:特定の教科	斗書は使用しない.	講義資料を用意するの)で, 各自講義(こ持参すること.		
No textbook is requ	ired for this class.					
Reference1	Reference1 Book title Precision machine design					
			0			690918-3
	Author	Alexander H.	Publisher	Prentice Hall	Publish year	1992
		Slocum			-	
Reference2	Book title	Foundations of Ultr	aprecision Mec	hanism Design	ISBN	2-88449-
						001-9
	Author	S.T.Smith. D.G.	Publisher	Gorden and	Publish vear	1992
		Chetwynd		Breach Science		
	Publishers					
Reference3	Book title	ナノテクノロジーとお	」 昭精密位置決め	技術	ISBN	4-7693-
						2175-9
	Author	大塚二郎著	Publisher	工業調査会	Publish vear	2005
Notes for reference		八冰二山省		工术调查工	T ablish you	2000
	1					
Goals to be achieve	De					
1) 精密メカトロニク	スの其礎を理解し	簡単な議論ができる				
「竹田ノリーー」						
2)精密メカトロニク	スの機構やアクチェ	ュエータの基本的な特征	戦と動作範囲に	よる選択の違いを埋留	解し, 説明できる	
3) 精密メカトロニク	スのセンサの基本的	的な特徴を理解し、利	用できる.			
4) 蚌肉 ノカトローク	フの判例における	運動な理解できる				
4/相省アルトローク	への前面にのいる	木越を埋胜できる.				
I) To understand tr	he basics of precisi	on mechatronic system	ms and have a l	briet discussion.		
To understand	and explain the ba	asic features of mech	anisms and ac	tuators in precision	mechatronic sys	stems and th
differences in selec	tion depending on t	the working range				
		-+				
3) To understand a	nd use the basic fe	atures of sensors for	precision mech	atronic systems.		
To understand c	ontrol issues in pre	cision mechatronic sy	stems.			
Evaluation of achie	vement					
評価方法:毎回の澤	寅習・小テスト(50%)	,レポート(50%)で評価	町する.			
The final grade will	be determined by c	quizzes during lecture	50% and report	50%, comprehensively		
Examination						
レポートで実施						
By Report						
Details of examinat	ion					
	lou					
Other information						
	100 E					
Raiji Sato, Room:D-	-408, ⊏-mail:sato@n	ne.tut.ac.jp				
N/A						
Office hours						
事前にメールで確認	忍					
Need an appointme	nt by e-mail					
Relations to attain	nent objectives of	learning and education	า			
	•	•				
Key worde						
			≠1 <u>↓</u> /= \+ →		n d 1	
運動誤差,精密機	構,超精密機構,機	幾構設計,案内,軸受,	動力伝達要素	セ, アクチュエータ, 計ネ	則,センサ,制御	1, 超精密加]
機,露光装置,三次	z元測定機					
Motion error precis	sion mechanism. ult	ra-precision mechanis	sm. mechanism	design, guide, bearing	. power transmis	ssion, actuato
measurement sens	or control ultra-p	recision machine tool	exposure tool	coordinate measuring	machine	,
mousurement, sens	or, control, uitra pr		onposure 1001,		maorinio	

(M41630460)Advances in Systems, Control and Robotics[Advances in Systems, Control and R

Subject name[English]	Advances in Systems, Control and	Robotics Advance	es in Systems Con	trol and Robotic	-e]
Subject name[English]	Advances in Systems, Control and	Subject eres	Advanced	Beguired or	Elective
Schedule number	M41030400	Subject area	Mashawiaal		Liective
				elective	
-		D	Engineering	0	-
lime of starting a	Spring I term	Day of the	Thu.2~2,Fri.2~	Gredit(s)	2
course		week,period	2	.	
Faculty	Graduate Program for Master's De	egree		Subject	2~
				grade	
Department Offered	Mechanical Engineering			Beggining	M2
				grade	
Charge teacher	佐藤 海—, 闪山 直樹 SATO Kaij	JI, UCHIYAMA Na	oki		
namelRoman alphabet					
mark	1150 111 055005				
Numbering	MEC_MAS55025				
Objectives of class					
Students will acquire the	e following skills by taking this cours	e.			
1) Learn basic knowled	ge of machines for precision and	ultra-precision i	motions, and gain a	an understandin	ng of precision
deterioration factors.					
2) Gain an understandir	ng of basic principles of sensors ar	nd properties of a	control methods for	r precision and	ultra-precision
motions, and be able to	choose appropriately.				
3) Learn typical mathem	natical programming approaches that	optimize objectiv	e functions under c	onstraints.	
Contents of class					
[Plane]					
Lectures provided by Pr	rof Sato:				
(face to face) 1st week	vitime Introduction				
(ace to face) TSt week	/ time Introduction	precision mechan	isms with a short w	orking range	
(face to face) 2rd week	<pre>/time Design of precision/ultra- /time Design of precision/ultra- /time</pre>	precision mechania	ma with a long work		
(lace to lace) ord week	// ume Design of precision/ utra-pr		ms with a long work	ang range	
(on-demand) 4th wee	K/time Measurement techniques i	for precision/ultra	-precision motion s	systems	
(face to face) oth week	/ time Control techniques for prec	ision/ultra-precis	ion motion systems		
(on-demand) oth wee	sk/time Gase study Exposure tool	Is – Aim and trar	isition of performan	ce and configura	ation
(on-demand) /th wee	sk/time Gase study Goordinate m	easuring machine	 Aim and features 		
Lectures provided by Pr	rof. Uchiyama:				
(face to face) 1st week	ៈ Fundamentals of mathematical proន្	gramming I			
(on-demand) 2nd wee	ek: Fundamentals of mathematical pr	rogramming II			
(face to face) 3rd week	: Algorithm of linear programming I				
(on-demand) 4th wee	k: Algorithm of linear programming Il	I			
(face to face) 5th week	:: Fundamentals of nonlinear program	nming			
(on-demand) 6th wee	k: Algorithm of nonlinear programming	ng			
(face to face) 7th week	:: Summary (including the end-term e	examination)			
If there will be any chan	uges regarding Toyohashi University (of Technology Ac	tivity Restrictions I	evel for	
Preventing the Spread of	of Corona virus the course content :	and evaluation of	achievement are su	biect to change	
16.11			10/01/1		
If there is any changes a	about a class schedule, I will inform y	you on Google Cla	assroom or KYUMU	JUHU SYSTEM	1.
Self Preparation and Re	view				
Students are required to	o prepare for and review each lectur	e contents based	on handouts provid	ed.	
Students are required to	o make an effort to collect and unde	rstand the inform	ation and the knowl	ledge from texts	, literature and
exhibitions regarding this	s lecture themselves.				-
To enhance a learning e	ffect, students are encouraged to re	fer to distributed	handouts.		
Expected time to prepar	re for and review the lecture is aroun	nd 90 minutes ead	sh.		
Related subjects					
Mechatronics Control F	ngineering. Measurement and Instru	mentation Machi	ne Design Mechani	ical Elements C	alculus. Linear
algebra					
5.000 G					

Deferrence 1	Beals title	Dur staten werschiere	-l '		ICDN	0.10			
rterence i	BI BOOK TILE Precision machine design			ISBN	690918-3				
	Author	Alexander H	Publisher	Prentice Hall	Hall Publish year				
		Slocum		T TOTICIOU TIUN	r abhorr year	1002			
Reference2	Book title	Foundations of ultr	aprecision mech	anism design	ISBN	2-88449-			
				-		001-9			
	Author	S.T. Smith and	Publisher	Gordon and	Publish year	1992			
		D.G. Chetwynd		Breach Science					
				Publishers					
Notes for reference	8								
N/A									
Goals to be achiev	ed								
1) To understand t	ne basics of precision	on mechatronic syste	ms and have a b	priet discussion.		teres and th			
2) To understand	and explain the ba	sic teatures of mech	nanisms and ac	tuators in precision r	nechatronic sys	stems and tr			
almerences in selec	ction depending on t	the working range.	provision moch	trania avatama					
 To understand a To understand c 	ontrol issues in pre	cision mechatronic sy		atronic systems.					
5) Expected to und	erstand fundaments	als of mathematical pr	ogramming						
 6) Expected to und 6) Expected to und 	erstand fundamenta	als of linear programm	ing						
 Expected to und Fxpected to und 	erstand fundamenta	als of nonlinear programm	mming						
// _/pootou to unu		ine er nerninear pregre							
Evolution of achie									
Evaluation of achie	vement								
Lectures provided	by Prof. Sato								
The final grade will	be determined by q	uizzes during lecture	50% and report	50%, comprehensively.					
Lectures provided	by Prof. Uchiyama								
The grade will be d	etermined by report	is (30%) and the end- a	of term examina	tion score (70 %).					
Final grade will be t	he average of the a	above two grades.							
-	-	-							
The credit of this c	ourse is given if the	e score of the above (examination is 6	0% or over					
Grade levels are C	(60% – less than 70	%) B (70 – less than a	80%) A (80 - les	s than 90%) and S (90	% or over)				
Evamination									
その他									
Other									
Details of exeminat	ion								
Other information									
Naaki Habiyama D	om:D-106 E-mailu	un hivema@tut in							
Kaiii Sata DaamuD	-400, E-maileata@m	ichiyama@tut.jp							
Kaiji Salo, Room.D-	-400, E-mail.salo@n	ie.tut.ac.jp							
Deferrence LIDI									
Reference URL									
Reference URL N/A Office hours									
Reference URL N/A Office hours Need an appointme	nt by e-mail								
Reference URL N/A Office hours Need an appointme Relations to attain	nt by e-mail ment objectives of l	learning and educatio	n						
Reference URL N/A Office hours Need an appointme Relations to attain	nt by e-mail ment objectives of l	learning and education	n						
Reference URL N/A Office hours Need an appointme Relations to attain	nt by e−mail ment objectives of l	learning and education	n						
Reference URL N/A Office hours Need an appointme Relations to attain	nt by e−mail ment objectives of l	earning and educatio	n						
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Reference URL N/A Office hours Need an appointme Relations to attain	nt by e−mail nent objectives of l	earning and education	n						
Reference URL N/A Office hours Need an appointme Relations to attain Key words	nt by e-mail ment objectives of l	earning and education	n						
Reference URL N/A Office hours Need an appointme Relations to attain Key words Motion error, precis	nt by e-mail ment objectives of l sion mechanism, ult	earning and education	n sm, mechanism	design, guide, bearing,	power transmis	sion, actuat			
Reference URL N/A Office hours Need an appointme Relations to attain Key words Motion error, precis measurement, sen	nt by e-mail ment objectives of l sion mechanism, ult sor, control, ultra-	earning and education ra-precision mechani precision machine t	n sm, mechanism ool, exposure t	design, guide, bearing, cool, coordinate meas	power transmis suring machine,	ssion, actuato			

(M42610020)Thesis Research on Electrical and Electronic Information Engineering[Thesis Research on Electrical and Electronic Information Engineering]

Subject name[English]	Thesis Research on Electrical and Electronic Information Engineering Thesis Research on						
	Electrical and Electronic Information Engineering]						
Schedule number	M42610020	Subject area	Advanced	Required or	Required		
			Electrical and	elective			
			Flectronic				
			Information				
			Engineering				
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6		
	LIGUIO	week period		Of Calc(C)	°		
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~		
Department Offered	Electrical and Ele	ctronic Information	Engineering	Beggining	M1, M2		
•			0 0	grade	·		
Charge teacher name[Roman	S2系教務委員, 2	2系各教員 2kei kyor	nu Iin−S, 2kei kakuk	youin			
alphabet mark]							
Numbering	ELC_MAS51025						
Objectives of class							
The thesis research aims to prov	/ide a practical exp	erience of research	n work. and to acqu	ire his/her researd	h skill with deep		
understanding of the electrical an	d electronic inform	ation engineering.	· ·				
Contents of class		5 5					
The research subject depends or	n the supervisor an	d the research gro	up you belong to. E	very student will h	ave an individual		
research subject. For more details	s. please contact w	ith vour supervisor.	., .				
-							
Self Preparation and Review							
Related subjects							
N/A							
Notes for textbook							
Reference and material will be av	ailable from the sun	ervisor					
Notes for reference							
Goals to be achieved							
To get something new on individu	al research fields						
To develop his/her research skill	including the planni	ng and the presents	ation				
Evaluation of achievement							
Presentation Thesis Coursework	and Outcomes are	a avaluated generally	M				
Grades: S: 90-100 A:80-89 B:70-	-79 C:60-69		y.				
Examination							
試験期間中には何も行わない							
None during exam period							
Details of examination							
N/A							
Other information							
N/A							
Reference URL							
N/A							
N/A	• • • • • • • • • • • •	hunstion					
Relations to attainment objective	s of learning and e	Jugation					
(B)技術者・研究者としての正しし	い倫理観と社会性						
上級技術者・研究者として社会的	り・倫理的責任を有	し、社会における技	術的課題を設定・	解決・評価する能力	」を身につけてい		
る。							
(C)高度な知識を統合的に活用で	できる実践力・創造ス	<u>ታ</u>					
電気・電子情報工学およびその関	関連分野に関する高	高度な知識を修得し	,それらを課題解決	のために統合的に	ニ活用できる実践		
的・創造的能力を身につけている	0						

(D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニケーションカを身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; have the ability to set, solve and evaluate technical issues in society

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(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other members

(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

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(M42610020)Thesis Research on Electrical and Electronic Information Engineering[Thesis Research on Electrical and Electronic Information Engineering]

Subject name[English]	Thesis Research on Electrical and Electronic Information Engineering[Thesis Research on						
	Electrical and Electronic Information Engineering]						
Schedule number	M42610020	Subject area	Advanced	Required or	Required		
			Electrical and	elective			
			Electronic				
			Information				
Time of starting a source	21/20110	Day of the	Engineering	One dit(a)	6		
lime of starting a course	Ziears	Day of the	Intensive	Great(s)	0		
Faculty	Graduate Program	for Master's Degre	20	Subject grade	1~1		
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining	M1		
			5 5	grade			
Charge teacher name[Roman	S2系教務委員, 2	2系各教員 2kei kyor	mu Iin−S, 2kei kakul	kyouin			
alphabet mark]							
Numbering	ELC_MAS51025						
Objectives of class							
The thesis research aims to prov	vide a practical exp	erience of research	n work, and to acqu	uire his/her researc	h skill with deep		
understanding of the electrical an	d electronic information	ation engineering.					
Contents of class							
The research subject depends or	n the supervisor an	d the research gro	up you belong to. I	Every student will h	ave an individual		
research subject. For more detail	s, please contact w	ith your supervisor.					
Self Preparation and Review							
N/A							
Related subjects							
N/A							
Reference and material will be av	ailable from the cup	envicor					
Notes for reference							
N/A							
Goals to be achieved							
To get something new on individu	al research fields.						
To develop his/her research skill	including the planni	ng and the presenta	ation.				
Evaluation of achievement							
Presentation, Thesis, Coursework	, and Outcomes are	e evaluated generall	y .				
Grades: S: 90-100, A:80-89, B:70	-79, C:60-69						
試験期間中には何も行わない							
None during exam period							
Other information							
N/A							
Reference URL							
N/A							
Office hours							
N/A							
Relations to attainment objective	s of learning and ea	ducation					
電気·電子情報工学専攻							
(B)技術者・研究者としての正しし	い倫理観と社会性						
上級技術者・研究者として社会的	り・倫理的責任を有	し、社会における技	術的課題を設定・	解決・評価する能力	」を身につけてい		
る。							
(C)高度な知識を統合的に活用で	できる実践力・創造ス	b					
電気・電子情報工学およびその間	関連分野に関する高	高度な知識を修得し	,それらを課題解涼	央のために統合的に	ニ活用できる実践		

的・創造的能力を身につけている。

(C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

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(D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で,自らの考えや成果を効果的に表現するコミュニケーション力を身につけている。

(D1) 論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

(D2) チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を 身につけている。

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Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

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(M4261002T)Thesis Research on Electrical and Electronic Information Engineering[Thesis Research on Electrical and Electronic Information Engineering]

Subject name[English]	Thesis Research on Electrical and Electronic Information Engineering Thesis Research on						
	Electrical and Electronic Information Engineering]						
Schedule number	M4261002T	Subject area	Advanced	Required or	Required		
			Electrical and	elective			
			Electronic				
			Information				
			Engineering				
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6		
Faculty	Graduate Program	for Master's Degre		Subject grade	2~2		
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining	M2		
			Linginooring	grade			
Charge teacher name[Roman	S2系教務委員,2	2 系各教員 2kei kvor	mu Iin−S. 2kei kakuk	vouin			
alphabet mark]				.,			
Numbering	ELC MAS51025						
Objectives of class							
The thesis research aims to prov	/ide a practical exp	erience of research	work, and to acqu	uire his/her researd	ch skill with deep		
understanding of the electrical an	d electronic inform	ation engineering.					
Contents of class		0 0					
The research subject depends or	n the supervisor an	d the research gro	up vou belong to. E	Everv student will h	nave an individual		
research subject. For more detail	s. please contact w	ith vour supervisor.		···· , ······			
·	-,						
Self Preparation and Review							
Related subjects							
N/A							
Notes for textbook							
Reference and material will be available	ailable from the sup	ervisor.					
Notes for reference							
N/A							
Goals to be achieved							
To get something new on individu	al research fields.						
To develop his/her research skill	including the planni	ing and the presenta	ation.				
Evaluation of achievement	0 1	0					
Presentation. Thesis. Coursework	and Outcomes are	e evaluated generall	v.				
Grades: S: 90-100. A:80-89. B:70-	-79. C:60-69		<u>,</u>				
Examination	,						
試験期間中には何も行わない							
None during exam period							
Details of examination							
N/A							
Other information							
N/A							
Reference URL							
N/AA							
Office hours							
N/A							
Relations to attainment objective	s of learning and e	ducation					
電気·電子情報工学専攻							
(B)技術者・研究者としての正しし	い倫理観と社会性						
上級技術者・研究者として社会的	・倫理的責任を有	し、社会における技	術的課題を設定・	解決・評価する能力	」を身につけてい		
る。							
(C)高度な知識を統合的に活用で	できる実践力・創造ス	ታ					
電気・電子情報工学およびその関	関連分野に関する 福	高度な知識を修得し	, それらを課題解決	そのために統合的に	こ活用できる実践		
的・創造的能力を身につけている	•						

(C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

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(D2) チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を 身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

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(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other members

(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

(M42610040)Seminar on Electrical and Electronic Information Engineering[Seminar on Electrical and Electronic Information Engineering]

Subject name[English]	Seminar on Electrical and Electronic Information Engineering[Seminar on Electrical and							
	Electronic Information Engineering]							
Schedule number	M42610040	42610040 Subject area Advanced Required or Required						
			Electrical and	elective				
			Electronic					
			Engineering					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6			
Faculty	Graduate Program	for Master's Degre	e	Subject grade	2~2			
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining	 M1			
-				grade				
Charge teacher name[Roman	S2系教務委員 2k	kei kyomu Iin−S						
alphabet mark]								
Numbering	ELC_MAS51015							
Objectives of class								
The seminar aims to provide a b	road understanding	of theoretical and	experimental appro	oches related to t	he electrical and			
electronic information engineering	; for the research w	ork of his/her mast	er thesis.					
Contents of class								
The class provides both of fundar	nental knowledge o	n the research work	of master thesis a	nd the most advand	ced results in the			
related field by reading research	papers and monogra	aphs. Contents of th	ie class depend on	the supervisor. To	be announced by			
Individual supervisors.								
Related subjects								
N/A								
Notes for textbook								
Textbook or material will be made	available from the	supervisor. To be a	nnounced by individ	ual supervisors.				
Notes for reference								
N/A								
Goals to be achieved		Calda						
To acquire fundamental knowledg	e on individual rese	arch fields.	om and the present	ation skill				
To acquire the ability of finding a	problem, the ability	or solving the prob	en and the present	acion skill.				
Evaluation of achievement								
Coursework, presentation and/or	report.							
Grades: S: 90-100, A:80-89, B:70	-79, C:60-69							
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
N/A								
Reference URL								
N/A								
Office hours								
N/A								
Relations to attainment objective	s of learning and e	ducation						
電気·電子情報工学専攻								
(B)技術者・研究者としての正しし	い倫理観と社会性							
上級技術者・研究者として社会的	・倫理的責任を有	し、社会における技	術的課題を設定・	解決・評価する能力	」を身につけてい			
a .								
(C)高度な知識を統合的に活用で	できる実践力・創造ス	ታ						

電気・電子情報工学およびその関連分野に関する高度な知識を修得し, それらを課題解決のために統合的に活用できる実践 的・創造的能力を身につけている。

(C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C2) 電気・電子情報工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。 (D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で,自らの考えや成果を効果的に表現するコミュニ ケーション力を身につけている。

(D1) 論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

(D2) チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を 身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; have the ability to set, solve and evaluate technical issues in society

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about electrical and electronic information engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other members

(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

(B) Sound ethics and social awareness as advanced-level engineers and researchers

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(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other members

(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

(M42610050)Seminar on Electrical and Electronic Information Engineering 1A[Seminar on Electrical and Electronic Information Engineering 1A]

Subject name[English]	Seminar on Elect	rical and Electronic	Information Engine	eering 1A[Seminar	on Electrical and	
	Electronic Information Engineering 14]					
Sobedule number	M42610050	Subject area	Advanced	Pequired or	Required	
Schedule humber	WI42010030	Subject area	Auvanceu Electrical and	cleative	Required	
			Electropic	000040		
			Information			
			Engineering			
Time of starting a course	Vear	Day of the	Intensive	Credit(e)	4	
Time of starting a course	1 Cal	week period	Incensive	Of Builds/	т	
Faculty	Graduate Program	for Master's Degre		Subject grade	1~	
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining	М1	
Bopardilone offorou			Linginooring	grade		
Charge teacher name[Roman	S2系教務委員 2	kei kvomu Iin−S		8.200		
alphabet mark]						
Numbering	ELC MAS51015					
Objectives of class	-					
The seminar aims to provide a h	road understanding	of theoretical and	experimental appro	aches related to t	he electrical and	
electronic information engineering	for the research w	ork of his/her mast	experimental appro			
Contents of class						
The class provides both of fundar	mental knowledge o	n the research work	of master thesis a	nd the most advan	ced results in the	
related field by reading research	naners and monogra	anhs Contents of th	e class depend on	the supervisor. To	be announced by	
individual supervisors					be announced by	
Self Preparation and Review						
N/A						
Related subjects						
N/A						
Notes for textbook						
Textbook or material will be made	available from the	supervisor. To be a	nnounced by individ	lual supervisors.		
Notes for reference				•		
N/A						
Goals to be achieved						
To acquire fundamental knowledg	e on individual rese	arch fields.				
To acquire the ability of finding a	problem, the ability	of solving the prob	lem and the present	tation skill.		
Evaluation of achievement						
Coursework, presentation and/or	report.					
Grades: S: 90-100, A:80-89, B:70	-79, C:60-69					
Examination						
試験期間中には何も行わない						
None during exam period						
Details of examination						
N/A						
Other information						
N/A						
Reference URL						
N/A						
Office hours						
N/A						
Relations to attainment objective	s of learning and e	ducation				
電気·電子情報工学専攻						
(B)技術者・研究者としての正しし	い倫理観と社会性					
上級技術者・研究者として社会的	り 倫理的責任を有	し、社会における技	術的課題を設定・	解決・評価する能力	りを身につけてい	
る。						
(C)高度な知識を統合的に活用で	できる実践力・創造に					
電気・電子情報工学およびその関	関連分野に関する高	高度な知識を修得し	、それらを課題解決	のために統合的に	こ活用できる実践	
的・創造的能力を身につけている	0					

(C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C2) 電気・電子情報工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。
 (D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニケーションカを身につけている。

(D1) 論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

(D2) チーム内の個々の要員の価値観を互いに尊重するとともに,協調して,チームとしての目標達成に寄与できる高い能力を 身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; have the ability to set, solve and evaluate technical issues in society

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about electrical and electronic information engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other members

(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; have the ability to set, solve and evaluate technicalissues in society

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(D2) Have high-level skills to mutually respect the values of individual team members; to contribute to the team's achievements through working cooperatively with other members

(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

(M42610060)Seminar on Electrical and Electronic Information Engineering 1B[Seminar on Electrical and Electronic Information Engineering 1B]

Subject name[English]	Seminar on Elect	rical and Electronic	Information Engine	ering 1B[Seminar	on Electrical and			
	Electronic Information Engineering 1B]							
Schedule number	M42610060	A42610060 Subject area Advanced Required or Required						
			Electrical and	elective				
			Electronic					
			Information					
			Engineering					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	2			
		week,period						
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	2~			
Department Offered	Electrical and Ele	ctronic Information	Engineering	Beggining	M2			
Ohanna taashar nama[Daman	00 云 扮 政 禾 吕 이	kai kuamu lin-S		grade				
Charge teacher name_Roman	32术软伤安良 2	kei kyömu im-S						
	ELC MAS51015							
The seminar aims to provide a h	road understanding	r of theoretical and	experimental appro	ochoc related to t	the electrical and			
electronic information engineering	for the research w	or theoretical and	experimental appro	oches related to t	the electrical and			
Contents of class								
The class provides both of funda	mental knowledge o	n the research work	of master thesis a	nd the most advan	ced results in the			
related field by reading research	papers and monogra	aphs. Contents of th	ne class depend on	the supervisor. To	be announced by			
individual supervisors.			·····		,			
Self Preparation and Review								
N/A								
Related subjects								
N/A								
Notes for textbook								
Textbook or material will be made	available from the	supervisor. To be a	nnounced by individ	ual supervisors.				
Notes for reference								
N/A								
Goals to be achieved								
To acquire fundamental knowledg	e on individual rese	arch fields.						
To acquire the ability of finding a	problem, the ability	of solving the prob	iem and the present	ation skill.				
	roport							
Grades: S: 90-100 A:80-89 B:70	-79 C:60-69							
Examination	70, 0.00 00							
試験期間中には何も行わない								
None during exam period								
Details of examination								
N/A								
Other information								
N/A								
Reference URL								
N/A								
N/A Delations to attainment chiestic								
	is of learning and e							
電気・電子情報工学専攻								
(B)技術者・研究者としての正し	い偏埋観と社会性	1 + 4 - + 1 - 7 +	ᄮᇔᇥᆇᇒᇢᆺ	の さっ まし オーチ フィント コ	ちちらにつけてい			
上 椒 技 帲 看・ 妍 究 看 として 社 会 B 」 z	」・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	し、社会における技	(前的課題を設定・)	辨次・評価する能フ	」を身につけてい			
る。 (○) 宣産た知識た鉢へめにチロっ	、キス宇建力,創造・	1						
、こ/同皮な叫펞で杌戸的に活用(雷気・雷子情報工学なとれその問	こつ大岐ハ 周垣、 関連分野に関すス国	ハ 国産な知識を修得日	それらを理題解は	のために統合的に	「活田できる宝建			
		しいからそうないので						

的・創造的能力を身につけている。

(C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

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(D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で,自らの考えや成果を効果的に表現するコミュニケーション力を身につけている。

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Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

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(E) Inquisitive mind and continuous learning ability for changes in the state-of-the-art technology and in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

(M42630110)Methodology of R & D 2[Methodology of R & D 2]

Subject name[English]	Methodology of R	& D 2[Metho	dology	of R & D 2]		
Schedule number	M42630110	Subject are	a	Advanced	Required or	Elective
				Electrical and	elective	
				Electronic		
				Information		
				Engineering		
Time of starting a course	Spring term	Day of	the	Tue.3~3	Credit(s)	2
Faculty	Graduate Program	n for Master's			Subject grade	1~
Department Offered	Electrical and Ele	ctronic Inform	nation	Engineering	Beggining	M1
Dopardnone offorda			nacion		grade	
Charge teacher name[Roman alphabet mark]	S2系教務委員 2	kei kyomu Iin [.]	-S			
Numbering	ELC MAS58025					
Objectives of class	-					
The class aims to provide a ba	sic understanding	of R&D meth	odolog	w related to the e	lectrical and electr	ronic information
engineering for the research work	of his/her master	thesis	louolog			onic information
Contents of class		0000				
The class provides some fundam	ental tips to condu	ict R&D work	effect	ively Contents of	the class depend o	n the supervisor
To be announced by individual su	pervisors		oneo			
Self Preparation and Review						
Review each lecture and prepare	for the next class y	with reference	e to th	e textbook		
Related subjects						
N/A						
Notes for textbook						
To acquire the ability of identif	ving and formulatir	ng research i	orobler	n. planning and im	plementing specific	research tasks.
troubleshooting and communication	ng outcomes.	.8				roodaron caono,
Notes for reference						
N/A						
Goals to be achieved						
To acquire the ability of identif	ying and formulatir	ng research i	probler	n, planning and im	plementing specific	research tasks,
troubleshooting and communicati	ng outcomes.					
Evaluation of achievement						
Coursework and presentation are	evaluated generally	y .				
Grades: S: 90-100, A:80-89, B:70	-79, C:60-69.					
Examination						
試験期間中には何も行わない						
None during exam period						
Details of examination						
N/A						
Other information						
Reference LIRI						
N/A						
Office hours						
N/A						
Relations to attainment objective	s of learning and e	ducation				
電気·電子情報工学専攻						
(C)高度な知識を統合的に活用で	できる実践力・創造:	ታ				
電気・電子情報工学およびその間	関連分野に関する語	高度な知識を	修得し	,それらを課題解決	そのために統合的に	二活用できる実践
的・創造的能力を身につけている	•					
(C1) 電気・電子情報工学および	その関連分野の理調	淪・応用知識る	を自発	的に獲得し、それら	を統合的に活用でき	きる能力を身につ
けている。		<u></u>				
(C2) 電気・電子情報工学および・	その関連分野の広	範囲の知識の)連携(こより、研究開発に	対する方法論を体行	导して,研究開発
の計画を立案および実践し、課題	!解決のための新た	な技術を創造	できる	前市力を身につけて	いる。	

電気·電子情報工学専攻

(C)高度な知識を統合的に活用できる実践力・創造力

電気・電子情報工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践 的・創造的能力を身につけている。

(C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し, それらを統合的に活用できる能力を身につけている。

(C2) 電気・電子情報工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。

Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; have the practical and creative skills toutilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about electrical and electronic information engineering as well as related fields; to make plans for researchand development and put them into practice; and to create new technologies to solve problems

Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; have the practical and creative skills toutilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about electrical and electronic information engineering as well as related fields; to make plans for researchand development and put them into practice; and to create new technologies to solve problems

(M42630140)Physics for Electronics 1[Physics for Electronics 1]

Subject name[English]	Physics for Electr	onics 1[Physics for	Electronics 1]		
Schedule number	M42630140	Subject area	Advanced	Required or	Elective
			Electrical and	elective	
			Electronic		
			Information		
			Engineering		
Time of starting a course	Spring term	Day of the	Wed.3~3	Credit(s)	2
		week,period			
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining	M1
				grade	
Charge teacher name[Roman	松田 厚範,服部	敏明,加藤 亮 MA	TSUDA Atsunori, H	ATTORI Toshiaki, ł	KATOH Ryo
alphabet mark]					
Numbering	ELC_MAS52025				

Objectives of class

Objectives of this subject are to understand the fundamental aspects on functional materials, electrodics, ion recognition reagent, and also to have overall knowledge on the latest technologies on these physical phenomena.

Contents of class

"Physics for Electronics 1" is composed of three topics of functional materials, electrodics, and ion recognition reagents based on chemical analysis, which will be delivered for four or five times for each by three professors whose expertise lie on the individual categories.

The category of "functional materials" is made to learn preparation, characterization and applications of functional materials for electronics and ionics based on physics and chemistry. The contents are 1) Fundamentals of amorphous and crystal, 2) Structure and property of glasses, 3) New preparation techniques of advanced materials, 4) Functional materials for ionis including Li-ion battery and fuel cell, and 5) Functional materials for optics including coatings, micro-optical components, and photonic devices.

The category of "electrodics" is electrochemical reaction on electrode. The contents are 1) fundamentals of thermodynamics in aqueous solution, 2) fundamental of electrical double layer 3) fundamental of adsorption, 4) fundamentals of electrochemical reaction, and 5) applications of chemical sensor.

The category of "ion recognition reagents" is devoted to the understanding of (1) Fundamentals of chemical analyses, (2) Development of anion recognition reagent by using hydrogen bonding, and (3) Development of moisture sensing in oil with chemical sensor.

Self Preparation and Review

Students must perform their preparation and review of this subject based on the course materials with following the instruction of the teachers.

Related subjects

Physics for Electronics, Analysis of Inorganic Materials, Advanced Materials for Electronics, Functional Materials for Optical Applications, Analysis of Materials at Interface.

Notes for textbook

(1) Atkins' Physical Chemistry,
by Peter Atkins (Author), Julio de Paula (Author)
(Oxford University Press) (2014)ISBN-10: 019969740X

(2) Inorganic Chemistry Paperback,

by Duward Shriver (Author)

(W. H. Freeman)(2014) ISBN-10: 1429299061

Notes for reference

Goals to be achieved

(1) To understand fundamental aspects on functional materials, photonics, electrodics and spin electronics.

(2) To get the knowledge on the latest technologies on these physical and chemical phenomena.

Evaluation of achievement

The final evaluation will be the sum of three categories (33.4%); functional materials, electrodics, and ion recognition reagents based on chemical analysis.

Examination

試験期間中には何も行わない

None during exam period

Details of examination

Taking examination and submission of report will be explained and required by the teachers during their classes.

Other information

Functional materials; Atsunori Matuda : matsuda@ee.tut.ac.jp

Electrodics; Toshiaki Hattori : thattori@ee.tut.ac.jp

Ion recognition reagents based on chemical analysis: ryo_kato@crfc.tut.ac.jp

If there will be any changes regarding Toyohashi University of Technology Activity Restrictions Level for Preventing the Spread of Corona virus, the course content and evaluation of achievement are subject to change.

Classes will be given by on-demand(You can take the class whenever you want.) and/or face to face (Regular face to face class).

Reference URL

http://www.ee.tut.ac.jp/material

Office hours

one hour after every classes

Relations to attainment objectives of learning and education

(C) The basic skills and applicability necessary to scientifically make technological advances Utilizing the ability realized from the acquisition of a basic knowledge in science and technology; the mastery of subjects in mathematics, natural science, information technology, MOT, global environmental technology, and intellectual property.

Key words

functional materials, photonics, electrodisc, ion recognition reagent, chemical analysis

(M42630180)Electrical Technology and Materials 1[Electrical Technology and Materials 1]

Subject name[English]	Electrical Technology and Materia	ls 1[Electrical Te	chnology and Materi	als 1]	
Schedule number	M42630180	Subject area	Advanced	Required or	Elective
			Electrical and	elective	
			Electronic		
			Information		
			Engineering		
Time of starting a	Spring term	Day of the	Tue.2~2	Credit(s)	2
course		week,period			
Faculty	Graduate Program for Master's De	egree		Subject	1~
				grade	
Department Offered	Electrical and Electronic Informati	on Engineering		Beggining	M1
				grade	
Charge teacher	稲田 亮史,村上 義信,針谷 達	INADA Ryoji, MUI	RAKAMI Yoshinobu,	HARIGAI Toru	
name[Roman alphabet					
mark]					
Numbering	ELC_MAS53025				

Objectives of class

This lecture is implemented as an introduction to electrical energy systems and intended for students and other engineering disciplines. It is being useful as reference and self-study guide for the professional dealing with this important area. There are following three subcourses to choose from.

This lecture is implemented as an introduction to electrical energy systems and intended for students and other engineering disciplines. It is being useful as reference and self-study guide for the professional dealing with this important area. There are following three subcourses to choose from.

Contents of class

Subcourse 1 (T. Harigai)

- 1. Introduction of carbon nanomaterials and their relationship to electrical engineering (1 weeks)
- 2. Mechanical property of carbon nanomaterials (1 weeks)
- 3. Electrical property of carbon nanomaterials (1 weeks)
- 4. Application of carbon nanomaterials to energy devices (1 weeks)
- 5. Application of carbon nanomaterials to power electronics (1 weeks)

Subcourse 2 (5 weeks, R. Inada)

- 1. Introduction of Electrochemical Energy Conversion Devices (1 week)
- 2. Fundamentals of Electrochemical Energy Conversion Devices (1 week)

3. Lithium-Ion Secondary Batteries (1) (1 week)

- 4. Lithium-Ion Secondary Batteries (2) (1 week)
- 5. Recent Trend in Electrochemical Energy Storage Devices (1 week)

Subcourse 3 (Y. Murakami)

1. Introduction of Electric Energy Systems (1 week)

- 2. High Voltage Engineering and Electrical Insulation (2 weeks)
- 3. Fundamental Properties of Dielectrics and Electrical Insulating Materials(2 weeks)

Last week: Final examination

If there will be any changes regarding Toyohashi University of Technology Activity Restrictions Level for

Preventing the Spread of Corona virus, the course content and evaluation of achievement are subject to change. Subcourse 1 (T. Harigai)

1. Introduction of carbon nanomaterials and their relationship to electrical engineering (1 weeks)

2. Mechanical property of carbon nanomaterials (1 weeks)

- 3. Electrical property of carbon nanomaterials (1 weeks)
- 4. Application of carbon nanomaterials to energy devices (1 weeks)
- 5. Application of carbon nanomaterials to power electronics (1 weeks)

Subcourse 2 (5 weeks, R. Inada)

1. Introduction of Electrochemical Energy Conversion Devices (1 week)

- 2. Fundamentals of Electrochemical Energy Conversion Devices (1 week)
- 3. Lithium-Ion Secondary Batteries (1) (1 week)

4. Lithium-Ion Secondary Batteries (2) (1 week)

5. Recent Trend in Electrochemical Energy Storage Devices (1 week)

Subcourse 3 (Y. Murakami)

1. Introduction of Electric Energy Systems (1 week)

2. High Voltage Engineering and Electrical Insulation (2 weeks)

3. Fundamental Properties of Dielectrics and Electrical Insulating Materials(2 weeks)

Last week: Final examination

If there will be any changes regarding Toyohashi University of Technology Activity Restrictions Level for

Preventing the Spread of Corona virus, the course content and evaluation of achievement are subject to change.

Self Preparation and Review

Materials to be used in the lecture will be distributed from the lecturer before starting each subcourse. The lecturers will give a lecture on the premise that all the students have prepared this material before the lecture begins. It may not be possible to attend a lecture if you do not prepare materials.

Materials to be used in the lecture will be distributed from the lecturer before starting each subcourse. The lecturers will give a lecture on the premise that all the students have prepared this material before the lecture begins. It may not be possible to attend a lecture if you do not prepare materials.

Related subjects

Basic electrical power engineering course is prerequisite.

Basic electrical power engineering course is prerequisite.

Notes for textbook

Materials will be prepared by the lecturer.

Materials will be prepared by the lecturer

Reference1	Book title	Fuel Cell Systems	Explained		ISBN	
	Author	J. Larminie and A. Dicks	Publisher	Wiley	Publish year	
Reference2	Book title	Lithium Ion Batteri	es: Science and T	Technologies	ISBN	
	Author	M. Yoshio, R.J. Brodd and A. Kozawa	Publisher	Springer–Verlag	Publish year	
Reference3	Book title	High Voltage Engin	eering		ISBN	
	Author	E. Kuffel, W. Zaengel and J. Kuffel	Publisher	Newnes	Publish year	

Notes for reference

特になし

N/A

Goals to be achieved

- 1. Understand the basics and recent trend for carbon materials and their application.
- 2. Understand the basics and recent trend for rechargeable batteries.
- $\ensuremath{\mathbf{3}}$. Understand the basics and recent trend for insulation materials and its application.
- 1. Understand the basics and recent trend for carbon materials and their application.
- 2. Understand the basics and recent trend for rechargeable batteries.
- 3. Understand the basics and recent trend for insulation materials and its application.

Evaluation of achievement

In final exams we will ask questions on the contents of all subcourses. We evaluate the results only based on the final exam scores. The result is evaluated in the following five stages.

S: If the score of the final exam is 90 points or more

A: If the score of the final exam is 80 points or more

- B: If the score of the final exam is 70 points or more
- C: If the score of the final exam is 60 points or more
- D: If the score of the final exam is less than 60 points

In final exams we will ask questions on the contents of all subcourses. We evaluate the results only based on the final exam scores. The result is evaluated in the following five stages.

S: If the score of the final exam is 90 points or more

A: If the score of the final exam is 80 points or more

B: If the score of the final exam is 70 points or more

C: If the score of the final exam is 60 points or more
D: If the score of the final exam is less than 60 points
Examination
定期試験を実施(対面)
Examination(Face to Face)
Details of examination
In order to obtain good results in final exams, we will also conduct a small test at any time while each subcourse is offered.
Therefore, it is desirable to prepare lecture materials beforehand and attend all the lectures.
In order to obtain good results in final exams, we will also conduct a small test at any time while each subcourse is offered.
Therefore, it is desirable to prepare lecture materials beforehand and attend all the lectures.
Other information
特になし
N/A
Reference URL
特になし
N/A
Office hours
We do not have an office hour, so contact first by e-mail.
We do not have an office hour, so contact first by e-mail.
Relations to attainment objectives of learning and education
Key words

(M42630220)LSI Process 1[LSI Process 1]

Subject name[English]	LSI Process 1[LS	I Process 1]			
Schedule number	M42630220	Subject area	Advanced	Required or	Elective
			Electrical and	elective	
			Electronic		
			Information		
			Engineering		
Time of starting a course	Spring term	Day of the	Thu.2~2	Credit(s)	2
		week,period			
Faculty	Graduate Program	n for Master's Degr	ee	Subject grade	1~
Department Offered	Electrical and Ele	ctronic Information	Engineering	Beggining grade	M1
Charge teacher name[Roman	澤田 和明,石川	靖彦,関口 寛ノ	、野田 俊彦 SAW	ADA Kazuaki, ISH	IKAWA Yasuhiko,
alphabet mark]	SEKIGUCHI Hirot	o, NODA Toshihiko			
Numbering	ELC_MAS54025				
Objectives of class					
From the viewpoint of deep unde	rstanding of LSI pro	ocesses, semicondu	uctors devices inclu	ding material desgir	n and an example
of latest device will be lectured.	. .			0 0	
Contents of class					
Integrated circuits					
Device processing					
MEMS/NEMS					
Latest MOS FETs					
Current topics in IC/MEMS					
Self Preparation and Review					
Review each lecture and prepare	for the next class v	with reference to th	ne textbook.		
Related subjects					
The basic knowledge on the quan	tum mechanics, the	ermodynamics, and	electronics are desir	rable.	
		•			
Semiconductor Physics Master o	ourco				
Notes for textbook	.oui 30				
Physics of Semiconducate Device					
S M Sze Willy					
Notes for reference					
N/A					
Goals to be achieved					
(1) To understand fundamental as	spects on ISI proce	ess and semiconduc	ctor devices includin	g material design	
(2) To get the knowledge on the l	atest technologies	on I SI process		8 materia: 400.8m	
Evaluation of achievement					
routine exeam(100%)					
Examination					
その他					
Other					
Details of examination					
N/A					
Other information					
K.Sawada (C−605)					
sawada@ee.tut.ac.jp					
Y.Ishikawa (C-607)					
ishikawa@ee.tut.ac.jp					
H. Sekiguchi (C-610)					
sekiguchi@ee.tut.ac.jp					
T. Noda (C-611)					
noda-t@eiiris.tut.ac.jp					
Reference URL					
http://www.tut.ac.jp/english/intro	oduction/02EE.pdf				
(department)					
http://www.int.ee.tut.ac.jp/					

(devision)

http://www.tut.ac.jp/english/research/research_highlights.html (research activities)

Office hours

book an apopintment by e-mail, phone, etc.

Relations to attainment objectives of learning and education

電気・電子情報工学専攻 (C1) 電気・電子情報工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につ けている。

Graduate Program of Electrical and Electronic Information Engineering for Master's Degree (C1) Have the skills to voluntarily acquire theories and applied knowledge about electrical and electronic information engineering as well as related fields; to utilize such knowledge in an integrated manner Key words

(M42630240)Information and Communication Technology 1[Information and Communication Technology 1]

Subject name[English]	Information and (Communication Tec	hnology 1[Informati	on and Communic	ation Technology
Schedule number	M42630240	Subject area	Advanced Electrical and Electronic Information	Required or elective	Elective
Time of starting a course	Spring term	Day of the	Engineering Mon.3~3	Credit(s)	2
Faculty	Graduate Program	n for Master's Degre		Subject grade	1~
Department Offered	Electrical and Ele	ctronic Information	56 Engineering	Beggining	M1
Charge teacher name[Roman		啓悟 UFHARA Hid		grade	
alphabet mark]	工 称 37年, 1113			oigo	
Numbering	ELC MAS55025				
Objectives of class	-				
Students select one course from A first course is intended for lea wireless networks. Students are r The other course is intended fr multiple-input multiple-output (M understanding of existing advance Contents of class Course 1 provided by Prof. Uehar	the following two c arning mainly mediu required to give solu or learning point-t IIMO) systems in th ad schemes in wirel	ourses: um access control, utions of the probler o-point communica ne physical layer of ess communications	multi-hop communi ns which cause per ition systems, mult wireless communic s.	cations and other formance degradati iuser communicati ations. Students cl	topics related to ion. ion systems, and hallenge a unified
1. Medium access control protoco	ols				
2. Multi-hop communications					
3. Ad hoc and sensor networks					
Course 2 provided by Prof. Takeu 1. Point-to-point communication 2. Multiuser communication syste 3. MIMO systems If there will be any changes regar Preventing the Spread of Corona If there is any changes about a cl Saff Preparation and Paview	ıchi: systems ms ding Toyohashi Uni [,] virus, the course c lass schedule, I will	versity of Technolog ontent and evaluation inform you on Goog	gy Activity Restricti on of achievement a gle Classroom or KY	ons Level for ire subject to chan OMU JOHO SYSTI	ge. EM.
Beview each lecture and property	for the next class	with reference to th	a handauta		
Review each lecture and prepare	TOP THE HEXT Class		e nanuouts.		
Students who register for this le below:	cture must pass ar	n interview by the p	professors to check	that they satisfy	the prerequisites
Prerequisite of Course 1: Sufficient knowledge about the for processing, probability, random va	ollowing; wireless d ariables and stocha:	igital modulation an stic process.	d demodulation, rad	io propagation cha	racteristic, signal
Prerequisite of Course 2: Deep understanding on modulatio particular, sufficient knowledge at Notes for textbook	n/demodulation, sig pout probability the	gnal processing, prol ory is required.	pability theory, and i	nformation theory	is prerequisite. In
Instruct in 1st class.					
Notes for reference					
N/A Goale to be achieved					
Course 1:					
 Understand the mechanism of r 	nedium access con	trol and multi-hop o	ommunications		
- Understand the characteristics	of ad hoc and sens	sor networks			

- Present a solution or a new application for the above

Course 2:

- Understand the concept of detection, diversity, and channel uncertainty in point-to-point communication systems.

- Understand resource allocation and interference management in multiuser communication systems.

- Understand statistical channel models and basic multiuser detection schemes in MIMO systems.

Evaluation of achievement

Course 1: Marks are based on reports and presentations.

Course 2: Marks are based on reports and tests.

Examination

定期試験を実施(対面)

Examination(Face to Face)
Details of examination

N/A

Other information

For e-mail address information, visit http://www.comm.ee.tut.ac.jp/

Reference URL

http://www.comm.ee.tut.ac.jp/

Office hours

Appoint a time slot via email

Relations to attainment objectives of learning and education

電気・電子情報工学専攻 (C)高度な知識を統合的に活用できる実践力・創造力 電気・電子情報工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践 的・創造的能力を身につけている。

Graduate Program of Electrical and Electronic Information Engineering for Master's Degree

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about electrical and electronic information engineering as well as related fields; have the practical and creative skills toutilize such knowledge for problem solving in an integrated manner

Key words

wireless networks, medium access control, multi-hop, wireless communications, modulation/demodulation, MIMO

Subject name[English]	Seminar on Computer Science and Engineering I[Seminar on Computer Science				
Schedule number	M43610010	Subject area	Advanced Computer Science and	Required or elective	Required
Time of starting a course	Year	Day of the week,period	Intensive	Credit(s)	4
Faculty	Graduate Progra	am for Master's Degr	ee	Subject grade	1~
Department Offered	Computer Scier	nce and Engineering		Beggining grade	M1
Charge teacher name[Roman alphabet mark]	S3系教務委員	3kei kyomu Iin−S			
Numbering	CMP_MAS5101	5			
science and engineering. It is also aimed for students to a and technical discussion and writ	acquire various sl	kills, required in gene	aral research work,	such as those for	oral present
Self Preparation and Review 教員が指定する内容に関し、予習 Consult with your advisor. Related subjects 指導教員に問い合わせること。 Consult with your advisor.	・ 復習を行う。				
相導教員に向い合わせること。					
Notes for reference					
Goals to be achieved (1)最先端の専門分野の英文が (2)技術的な情報を扱う英文が解 (3)論文の標準的な構成ができる (4)発表というスタイルでの情報 (5)情報の不足を質問という形式 (1) To understand English literatu (2) To interpret technical informat (3) To make a standard construct (4) To provide information by ora (5) To point out the lack of inform	理解でき、わかり 釈でき、作文でき 。 是供ができる。 で指摘できる。 re on state-of-th tion written in En ion of a technical presentation. nation by question	やすく説明できる。 きる。 neーart areas of exper glish, and to write su I paper. ns.	tise, and to explain o ch information in En	slearly. glish.	
Evaluation of achievement					eter 1. ~ 60 A *
技術情報の発見に向けた自主性 導教員が判定する。	、技術情報の理	解度、説明の方法、	頁問への回答、議論	への参加の様子	等から総合的
Will be evaluated by taking into	account variation +	actors overall such	as technical avalance	tion question and	wering dicc

試験期間中には何も行わない

None during exam period

Details of examination 課題レポートやプレゼンテーションに基づいて評価する。 Your supervisor will evaluate your presentation and your reports. **Other information**

Reference URL

Office hours

指導教員に問い合わせること。

Consult with your advisor.

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力

情報・知能工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能力を身につけている。

(C1) 情報・知能工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C2) 情報・知能工学およびその関連分野の広範囲の知識の連携により,研究開発に対する方法論を体得して,研究開発の計画を立案および実践し,課題解決のための新たな技術を創造できる能力を身につけている。

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize suchknowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems
(M43610020)S πΓς n'l

Subject name[English]	Seminar on Con	nputer Science an	d Engineering II[Se	eminar on Compu	ter Science and		
Schedule number	Engineering II M43610020	Subject area	Advanced Computer Science and Engineering	Required or elective	Required		
Time of starting a course	Year	Day of the week.period	Intensive	Credit(s)	2		
Faculty	Graduate Progran	n for Master's Degr	ee	Subject grade	2~		
Department Offered	Computer Science	e and Engineering		Beggining grade	M2		
Charge teacher name[Roman alphabet mark]	S3系教務委員 3	kei kyomu Iin−S			L		
Numbering	CMP_MAS61015						
各研究室が指定する情報学に関 技術情報を理解、説明、質疑・応行 The course is intended for stud science and engineering. It is also aimed for students to a and technical discussion and writi Contents of class 教員が指定する最先端の技術情 教員は技術情報の内容の発見、 While specific contents depend relevant textbooks/research pape Self Preparation and Review 教員が指定する内容に関し、予習 Consult with your advisor. Related subjects 指導教員に問い合わせること。 Consult with your advisor.	引する最先端の技術情報(特に英語による最先端の技術情報)を発見する能力、ならびに、その 5答できる能力を養う。 idents to study basic materials in depth, related to his/her research subjects in computer acquire various skills, required in general research work, such as those for oral presentation, ting.						
Notes for textbook 授業にて指定する。 Consult with your advisor.							
Notes for reference							
Goals to be achieved (1)最先端の専門分野の英文が3 (2)技術的な情報を扱う英文が絡 (3)論文の標準的な構成ができる (4)発表というスタイルでの情報表 (5)情報の不足を質問という形式 (1) To understand English literatu (2) To interpret technical informat (3) To make a standard construct (4) To provide information by oral (5) To point out the lack of inform	理解でき、わかりや 駅でき、作文できる。 是供ができる。 で指摘できる。 re on state-of-the- tion written in Engli ion of a technical p presentation. nation by questions	すく説明できる。 う。 -art areas of expert ish, and to write suc paper.	ise, and to explain c ch information in Eng	learly. glish.			
Evaluation of achievement 技術情報の発見に向けた自主性 導教員が判定する。	、技術情報の理解	度、説明の方法、賃	質問への回答、議論	への参加の様子等	から総合的に指		
Will be evaluated by taking into a involvements and so on.	account various fac	tors overall, such a	as technical explana	tion, question ansv	vering, discussion		

Grade levels are S(90% or over), A(80%-less than 90%), B(70%-less than 80%) and C(60%-less than 70%)

Examination

試験期間中には何も行わない None during exam period

Details of examination

試験期間中には何も行わない

Non during exam period

Other information 指導教員に問い合わせること。

Consult with your advisor.

Office hours

指導教員に問い合わせること。

Consult with your advisor.

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力

情報・知能工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能力を身につけている。

(C1) 情報・知能工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C2) 情報・知能工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

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(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and developmentand put them into practice; and to create new technologies to solve problems

(M43610030)Thesis Research on Computer Science and Engineering[Thesis Research on Computer Science and Engineering]

Subject name[English]	Thesis Research	Thesis Research on Computer Science and Engineering[Thesis Research on Computer						
	Science and Engir	neering]						
Schedule number	M43610030	Subject area	Required or elective	Required				
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6			
		week,period						
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~			
Department Offered	Computer Science	e and Engineering		Beggining	M1, M2			
				grade				
Charge teacher name[Roman	S3系教務委員, 3	S3系教務委員, 3系各教員 3kei kyomu Iin-S, 3kei kakukyouin						
alphabet mark]								
Numbering	CMP_MAS61015							

Objectives of class

The course is intended for students to foster their interests in research problems on computer science and engineering and to acquire ability for independent studies.

It is also aimed for students to acquire, through thesis research, cooperativeness, a sense of responsibility, abilities for problem solving, research planning, decision making, outcome presentation and subject investigation, and to enhance their creativity and persistency, among others.

Contents of class

It is usually the case that thesis research is carried out on individual bases with specific contents differing from one student to another.

Consult with your advisor for any further details.

Self Preparation and Review

Consult with your advisor for them.

Related subjects

Consult with your advisor for them.

Notes for textbook

Consult with your advisor for them.

Notes for reference

Goals to be achieved

To acquire abilities for doing research and development at technically high level, sophisticated decision making, and leading large scale research projects.

Evaluation of achievement

Three faculty members will be assigned to prepare the evaluation for your thesis research, based on publication records, master thesis, and oral presentation. It will be then finalized by the faculty meeting.

[Evaluation basis] Students who attend this class will be evaluated as follows:

- S: Achieved the high level of "master degree", 90 or higher (out of 100 points).
- A: Left something to be desired, 80 or higher (out of 100 points).
- B: Left something to be desired, 70 or higher (out of 100 points).

C: Left much to be desired, 60 or higher (out of 100 points).

Examination

試験期間中には何も行わない

None during exam period Details of examination

- Joans of Chalimador

Other information

Reference URL

Office hours

Relations to attainment objectives of learning and education

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members

(M43610030)Thesis Research on Computer Science and Engineering[Thesis Research on Computer Science and Engineering]

Subject name[English]	Thesis Research	Thesis Research on Computer Science and Engineering[Thesis Research on Computer						
	Science and Engir	neering]						
Schedule number	M43610030	Subject area	Required or elective	Required				
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6			
		week,period						
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~1			
Department Offered	Computer Science	e and Engineering		Beggining	M1, M2			
				grade				
Charge teacher name[Roman	S3系教務委員, 3	S3系教務委員, 3系各教員 3kei kyomu Iin−S, 3kei kakukyouin						
alphabet mark]								
Numbering	CMP_MAS61015							

Objectives of class

The course is intended for students to foster their interests in research problems on computer science and engineering and to acquire ability for independent studies.

It is also aimed for students to acquire, through thesis research, cooperativeness, a sense of responsibility, abilities for problem solving, research planning, decision making, outcome presentation and subject investigation, and to enhance their creativity and persistency, among others.

Contents of class

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- B: Left something to be desired, 70 or higher (out of 100 points).
- C: Left much to be desired, 60 or higher (out of 100 points).

Examination

試験期間中には何も行わない

None during exam period Details of examination

Other information

Reference URL

Office hours

Relations to attainment objectives of learning and education

(D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニケーション力を身につけている。

(D1) 論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

(D2) チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を 身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and technology

(M4361003T)Thesis Research on Computer Science and Engineering[Thesis Research on Computer Science and Engineering]

Science and regimening) Science and regimening) Subject area Advanced Required or Required Computer and elective of Required Science and Engineering devices of the Intensive Credit(s) 6 Faculty Graduate Program for Master's Degree Subject profession of the Intensive Credit(s) 7 Papertment Offered Computer Science and Engineering Beggining M2 grade Charge teacher name[Roman S3系教務委員、3系各教員 3kei kyomu lin-S, 3kei kakukyouin alphabet mak] CMP_MASB1015 OBjectives of class The course is intended for students to study basic materials in depth, related to his/her research subjects in compute science and engineering. It is also aimed for students to study basic materials in depth, related to his/her research subjects in compute science and engineering. It is also aimed for students to study basic materials in depth, related to his/her research subjects in compute science and engineering. While specific contents depend on the research areas students are involved in, it is usually the case for students to rare science and engineering. Relevant testbooks (Present hareas and report on them, as well as to present and discuss on the research work of their own. Self Proparation and Review After the guidance by an individual adviser, the student is expected to conduct his/her research work of their own. Self Proparation and Review After the guidance by an individual adviser, the student is expected to conduct his/her research on his/her own with pionsering spint. Notes for reference Goals to be achieved To acquire a billowerent Will be evaluated by taking into account various factors overall, such as technical explanation, question answering, discussion involvements and so on. Evaluation basis] Students who attend this class will be evaluated as follows: S. Achieved the be desired, 80 or higher (out of 100 points). S. Achieved the be desired, 80 or higher (out of 100 points). S. Achieved the be desired, 80 or higher (out of 100 points). S. Achieved the be desired, 80 or higher (out of 100 point	Subject name[English]	Thesis Research	on Computer Sci	ence and Engineer	ing[Thesis Resear	ch on Compute
Schebule number Mit 35 (1003) Subject area Advances Computer Science and Engineering Redures or requires requires or requires The of starting a course Year Day of the base of the week.period Engineering Gradutes 6 Feaulty Graduate Program for Master's Degree Subject grade 2~-2 Department Offered Computer Computer Science and Engineering Begging M2 Oharge teacher name[Roman Stabilistic MAT SS系数務委員, S系金教員 Skei kyomu lin~S, 3kei kakukyouin abilistic abilistic MAT Otherwse is intended for students to study basic materials in depth, related to his/her research subjects in comput science and engineering. Stabilistic Mathematics and the computer and technical discussion and writing. Contents of class The ourse is intended for students to acquire various skills, required in general research work, such as those for oral presentatio and technical discussion and writing. Contents of class Soft Foreartion and Rokew Aff Foreartion and Rokew Computer Science and liscuss on the research on his/her own with pioneering spirit. Rolate subjects Consult with your advisor. Notes for textbook Consult with your advisor. Science with your advisor. Schewendt Or higher (out of 100 pointa).	Cabadala annaban	Science and Engi	neering]	Adversed	De suites de suite	De mine d
Day of the Engineering Science Engineering Steleve Time of starting a course Year Day of the weekperiod Intensive Credit(a) 6 Faculty Graduate Program for Master's Degree Subject grade 2~-2 Department Offered Computer Science and Engineering Beggining grade M2 Ohargo teacher name[Roman alphabet mart] CMP_MAS61015 Beggining M2 Objectives of class The course is intended for students to study basic materials in depth, related to his/her research subjects in comput science and engineering. It is also aimed for students to acquire various skills, required in general research work, such as those for oral presentatio and technical discussion and writing. Contents of class The guidance by an individual adviser, the student is expected to conduct his/her research on his/her own with pionenring gpinh. Related subjects Consult with your advisor. Notes for textbook/ Consult with your advisor. The sublect advisor. Notes for textbook Consult with your advisor. Evaluated by taking into account various factors overall, such as technical explanation, question answering, discussio involvements and so on. Evaluation of achievement Storegrafie (so of 100 points). X-Lef comething to be desired, 10 or	Schedule number	M43010031	Subject area	Advanced	Required or	Required
Time of starting a oourse Year Day of the weekperiod Engineering Intensive Credit(a) 6 Faculty Craduate Program for Master's Degree Subject grade 2~2 Department Offored Computer Science and Engineering grade M2 2 Charge teacher name(Roman sighabet mark) S3系数器委員.3系各数員.3kei kyomu lin-S. 3kei katukyouin grade M2 Objectives of class CMP_MAS61015 Objectives of class The course is intended for students to study basic materials in depth, related to his/her research subjects in comput science and engineering. S The source is intended for students to study basic materials in general research work, such as those for oral presentatic and technical discussion and writing. Contents of class Contents of class S <td< th=""><th></th><th></th><th></th><th>Science and</th><th>elective</th><th></th></td<>				Science and	elective	
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Image: Second State Stat	Time of starting a course	Year	Day of the	Intensive	Credit(s)	6
Faculty Graduate Program for Master's Dagree Subject pred 2 2 Department Offered Computer Science and Engineering Begining grade M2 Chargo tascher name[Roman alphabet mark] S3素教務委員. 3系各教員 3kei kyomu lin-S, 3kei kakukyouin M2 Numbering CMP_MASS1015 CMP_MASS1015 Objectives of class The course is intended for students to study basic materials in depth, related to his/her research subjects in comput science and engineering. It is also aimed for students to acquire various skills, required in general research work, such as those for oral presentation and technical discussion and writing. Contents of class MW Market as using the case for students to represent and discuss on the research work of their own. Saff Proparation and Review After the guidance by an individual adviser, the student is expected to conduct his/her research on his/her own with pioneering spirit. Nates for ference Goals to be achieved Consult with your advisor. Notes for textbook Consult with your advisor. Notes for textmoot Notes for ference Goals to be achieved To acquire abilities for technical readings in English, logical thinking/explanation, and clear presentation. Science and factors in answering, discussic involvements and so on. [Evaluation basis] Students who attend this class			week,period			
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Chargo teacher name[Roman] S3条教務委員.3条各教員 3kei kyomu lin-S, 3kei kakukyouin alphabet mark] CMP_MAS61015 Detectives of class The course is intended for students to study basic materials in depth, related to his/her research subjects in comput science and engineering. It is also aimed for students to acquire various skills, required in general research work, such as those for oral presentatic and technical discussion and writing. Contents of class Contents of class Contents of class Contents of class While specific contents depend on the research areas students are involved in, it is usually the case for students to reveloant textbooks/research papers and report on them, as well as to present and discuss on the research work of their own. Self Proparation and Roview After the guidance by an individual adviser, the student is expected to conduct his/her research on his/her own with pioneering spirit. Related subjects Consult with your advisor. Notes for ference Consult with your advisor. Evaluation of achievemant Cale to be achieved To acquire abilities for technical readings in English, logical thinking/explanation, and clear presentation. Evaluation of so on. Evaluated by taking into account various factors overall, such as technical explanation, question answering, discussio involvements and so on. Evaluation basis] Students who attend this class will be evaluated as follows:	Department Offered	Computer Scienc	e and Engineering		grade	IVIZ
alphabet mark] OMP_MAS61015 Objectives of class The course is intended for students to study basic materials in depth, related to his/her research subjects in comput science and engineering. It is also aimed for students to acquire various skills, required in general research work, such as those for oral presentatic and technical discussion and writing. Contract of class While specific contents depend on the research areas students are involved in, it is usually the case for students to represent and discuss on the research work of their own. Self Proparation and Review After the guidance by an individual adviser, the student is expected to conduct his/her research on his/her own with pioneering spirit. Related aubjects Consult with your advisor. Notes for tarkbook Consult with your advisor. Solito be achieved To acquire abilities for technical readings in English, logical thinking/explanation, and clear presentation. Evaluation dasis Students who attend this class will be evaluated as follows: S: Achieved the high level of 'master degree', 90 or higher (out of 100 points). <tr< th=""><th>Charge teacher name[Roman</th><th>S3系教務委員,3</th><th>3系各教員 3kei kyo</th><th>mu Iin−S, 3kei kakuk</th><th>youin</th><th>I</th></tr<>	Charge teacher name[Roman	S3系教務委員,3	3系各教員 3kei kyo	mu Iin−S, 3kei kakuk	youin	I
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(D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニケーション力を身につけている。

(D1) 論文, 口頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

(D2) チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を 身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team members; and to contribute to the team's achievements through working cooperatively with other team members

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and technology

(M43610040)Seminar on Computer Science and Engineering[Seminar on Computer Science and Engineering]

Subject name[English]	Seminar on Co	omputer Scien	ce ai	nd Engineering[Ser	ninar on Comput	er Science and	
-	Engineering]				-		
Schedule number	M43610040	Subject area	a	Advanced	Required or	Required	
	1			Computer	elective		
	1			Science and			
Time of starting a course	Year	Day of	the	Intensive	Credit(s)	6	
	1 Cal	week.period	uio	Incensive	Or Builday	0	
Faculty	Graduate Progra	m for Master's	Degre	e	Subject grade	2~2	
Department Offered	Computer Scien	ce and Enginee	ring		Beggining	M2	
					grade		
Charge teacher name[Roman	S3系教務委員:	3kei kyomu Iin-	S				
alphabet mark]							
Numbering	CMP_MAS51015						
Objectives of class							
各研究室が指定する情報学に関	する最先端の技術	時情報(特に英語	吾によ	る最先端の技術情報	報)を発見する能力	」、ならびに、その	
技術情報を理解、説明、質疑・応	答できる能力を養 ⁴	う。					
The course is intended for stud	lents to study ba	isic materials i	n dep	th, related to his/	her research subj	ects in computer	
science and engineering.							
It is also aimed for students to a	acquire various sk	illis, required in	gener	ral research work, s	such as those for	oral presentation,	
and technical discussion and writ	.ng.						
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教員は技術情報の内容の発見、	理件、説明、貝疑・			(但按拍得を177。			
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Self Preparation and Review	s and report on	chem, as well as	s to pr	esent and discuss (irk of their own.	
教員が指定する内容に関し、予習	・復習を行う。						
Consult with your advisor							
Related subjects							
指導教員に問い合わせること。							
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(1) To understand English literature on state-of-the-art areas of expertise, and to explain clearly							
(2) To interpret technical informa	2) To interpret technical information written in English, and to write such information in English.						
(3) To make a standard construct	ion of a technical	paper.					
(4) To provide information by oral	presentation.						
(5) To point out the lack of inform	nation by question	s.					
Evaluation of achievement							
技術情報の発見に向けた自主性	、技術情報の理角	解度、説明の方	法、質	間への回答、議論	への参加の様子等	ŵから総合的に指	
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Will be evaluated by taking into a	account various fa	ictors overall, s	uch a	s technical explana	tion, question answ	vering, discussion	
involvements and so on.							
Grade levels are S(90% or over), /	4(80%-less than 90	0%), B(70%-less	than 8	80%) and C(60 <u>%</u> –les	s than 70%)		

Examination 試験期間中には何も行わない None during exam period

Details of examination

課題レポートやプレゼンテーションに基づいて評価する。

Your supervisor will evaluate your presentation and your reports. Other information

Reference URL

Office hours

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力

情報・知能工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能力を身につけている。

(C1) 情報・知能工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C2) 情報・知能工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計 画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about computer science and engineering as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

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(M43630430)Information Security[Information Security]

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https://www.cs.umd.edu/~waa/414-F11/IntroToCrypto.pdf		https://www.cs.umd.edu/~waa/41	4-F11/IntroToCrv	pto.pdf						
	https://crypto.stanford.edu/~dabo/cryptobook/	https://crypto.stanford.edu/~dab	o/cryptobook/							

Goals to be achieved
情報セキュリティとくに暗号理論について基本的な内容を理解すること。
To understand basic topics of information security especially cryptology.
Evaluation of achievement
レポート 100%に基づき評価する。
評価基準は下記のとおり。
S: 達成目標を 90%達成しており、かつレポートと定期試験の合計点(100 点満点)が 90 点以上
A: 達成目標を 80%達成しており、かつレポートと定期試験の合計点(100 点満点)が 80 点以上
B: 達成目標を 70%達成しており、かつレポートと定期試験の合計点(100 点満点)が 70 点以上
C: 達成目標を 60%達成しており、かつレポートと定期試験の合計点 (100 点満点)が 60 点以上
Evaluation is based on reports 100%.
Evaluation criteria is as follows.
S: Achieved at least 90% of goals, and obtained total points of reports and examination 90 or high (out of 100 points)
A: Achieved at least 80% of goals, and obtained total points of reports and examination 80 or high (out of 100 points)
B: Achieved at least 70% of goals, and obtained total points of reports and examination 70 or high (out of 100 points)
C: Achieved at least 60% of goals, and obtained total points of reports and examination 60 or high (out of 100 points)
Examination
試験期間中には何も行わない
None during exam period
Details of examination
N/A
N/A
Other information
N⁄A
N/A
Reference URL
N/A
N⁄A
Office hours
授業終了後。
After each class.
Relations to attainment objectives of learning and education
(CT) 情報・知能上学およいその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につげて
いる。
(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as
related fields; and to utilize such knowledge in an integrated manner
Key words
情報セキュリティ 実務経験
information security, business experience

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- 30.30440740101101	V SVETAM ANA	Solund Percentio	ni Alliditory 3	Svstem and	Sound Percention

Subject	Auditory Sys	stem and Sound Perc	eption[Auditory S	ystem and Sound P	erception]	
name[English]						
Schedule number	M43630440		Subject area	Advanced	Required or	Elective
				Computer	elective	
				Science and		
				Engineering		
Time of starting a	Spring2 term	1	Day of the	Tue.4~4	Credit(s)	1
course			week,period			
Faculty	Graduate Pr	ogram for Master's D	egree		Subject	1~
					grade	
Department Offered	Computer So	cience and Engineering	ng		Beggining	
Charge teachar		ATSUL Tashia			grade	
name[Roman		INTOOL LOSING				
alphabet mark]						
Numbering	CMP MAS53	025				
Objectives of class						
Objectives of class 陆営玄のIノュレスの#	もみたヴバキオ	ちちち 防営玄太田会	マオスための知覚。	主殿し スの結用た	田いた計算エニ	リレクレイ掘組
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This course provides	an introduction	a ta tha human aud	itony system It a	lea outlinee variour	nevebological	experiments for
understanding our audit	tory system a	nd computational mo	dels from the data		s psychological	saperiments for
Contents of class	tory system, a			•		
1 音の物理と聴覚のし	くみ(対面)					
1. 目の初空に応見のし 2. 時首の生理学(オン-	デマンド)					
2. 応見の工程子(オンデマ	アマンド) (***)					
0. 日の八とこ(オク)、 4 音の高さ(対面)	-17					
5 音の音色 楽器と音	= (対面)					
	D知覚(対面)					
0. 元戸の30(0)と百戸0 7 時堂の計算モデル化	シーンシーン	まとめ(オンデマンド)				
木堂の発刊コロナウン	リフ蔵沈坊士の	ナルのための汗動す	進の亦面に伴い	「「「「「」」」」では	結の証法にす	「国がナビス坦ム
本子の利空コロアワイク がをします	レヘ窓未加入口	のエのための石割茎	辛の変更に伴い、	反未内谷のよい以下	限の計画法に多	更加主しる場合
「いのりより。」 「「「「「」」のりより。	かる提会けて	Coorde Classroom =t	- 什教務情報シス-	テムトは通知します		
10未天池が忘がる史に Week 1 Physics of sou	-~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	uditony system (face-		ノムより通知しより	0	
Week 2 Physics of sou	he auditory ov	victory system (race				
Week 3 Loudness (on-	demand)					
Week 4 Pitch (face-to-	-face)					
Week 5 Timber instrum	nental sounds	and vocal sounds (fa	ace-to-face)			
Week 6. Vocalization m	echanism and	perception of speech	sounds (face-to-	face)		
Week 7. Computational	models of the	auditory system and	its application, an	d other latest topic	s (on-demand)	
					(contand)	
If there will be any char	nges regarding	Toyohashi University	v of Technology A	ctivity Restrictions	l evel for	
Preventing the Spread	of Corona viru	s the course conten	t and evaluation o	f achievement are s	subject to change	re.
If there are any change	s about a clas	s schedule. I will info	rm vou on Google	Classroom or KYOI	NU JOHO SYST	TEM.
Self Preparation and R	eview	,	, ,			
講義資料を事前に Goo	gle Classroom	にて公開します。講員	義当日までにダウン	ンロードしてください	` a	
予習:講義資料に目を注	。 通し、知らない	用語があれば調べて	おくこと(90分)		•	
復習:講義資料を見直し	、前回までの	講義内容と関連づけ	て整理する。講義	中に示された参考資	資料に目を通す	(90分)
Lecture materials are d	lisclosed to Go	ogle Classroom. Dow	vnload them by the	e day of the lecture		
To prepare a lecture, re	ead the lecture	e materials in advance	e and look up any	terms you do not k	now (90 min red	uired).
After a lecture, review	the lecture m	aterials and organize	the contents of t	he previous lecture	s. Read the ref	erence materials
provided during the lec	ture (90 min re	equired).				
Related subjects						
Visual Perception and (Cognition, Spe	ech and Natural Lang	uage Processing			
Visual Perception and (Cognition, Spe	ech and Natural Lang	uage Processing			
Notes for textbook						
講義資料を事前に Goo	gle Classroom	にて公開します。講員	義当日までにダウ:	ンロードしてください	·0	
Lecture materials are d	lisclosed to the	e Google Classroom.	Download them by	, the day of the lec [.]	ture.	
Reference1	Book title	The Sense of Hear	ing, 3rd edition.		ISBN	978-1138632

	Author	Christopher J.	Publisher	Routledge	Publish	2018
Deferrered	Deals title	Plack	the Development	of the original Cale	year	070
Referencez		edition.	the Psychology	of Hearing, oth	19 D N	978- 9004252424
	Author	Brian C. J. Moore	Publisher	Brill Academic Pub	Publish vear	2013
Notes for reference				1 00	year	
特になし						
N/A						
Goals to be achieved						
1. 聴覚の生理学的メカ	ニズムとその材	機能の関連を理解する				
2. 聴覚を理解するため	の知覚実験と	計算論的アプローチ手	法を学ぶ			
1. Understand the relat	ionship betwee	en physiological mecha	nism of the audit	ory system and its	function	
2. Learning the percept	tual experimen [.]	t techniques and comp	outational approa	ch to reveal the au	ditory system	
Evaluation of achieven	nent					
成績の評価法: 最終レ	ポートで評価し	ます。				
評価基準:原則的にす	べての講義には	出席したものにつき、1	「記のように成績	を評価します。		
S: 達成目標をすべて達	「成しており、か	、つレポートの合計点(100 点満点)が 9	0 点以上		
A: 達成目標を 90%達)	或しており、か-	つレポートの合計点(1	00 点満点)が 80	点以上		
B: 達成目標を 80%達別	或しており、か ⁻	フレポートの合計点(1	00 点満点)が 70	点以上		
C: 達成目標を 70%達)	成しており、か	フレポートの合計点(1	00 点満点)が 60	点以上		
The evaluation is based	d primarily on a	a final report (100 poin	ts).			
Students who attend a	ll classes will b	e evaluated as follows	:			
S: Achieved all goals ar	nd obtained po	int of final report, 90 c	or higher (out of 1	00 points).		
A: Achieved 90 % of go	als and obtaine	ed point of final report	, 80 or higher (ou	t of 100 points).		
B: Achieved 80 % of go	als and obtaine	ed point of final report	, 70 or higher (ou	t of 100 points).		
C: Achieved 70 % of go	als and obtaine	ed point of final report	, 60 or higher (ou	t of 100 points).		
Examination						
レホート C 美加 By Den ext						
Details of examination						
ちた し も Calmination						
Other information						
特になし						
N/A						
Reference URL						
特になし						
N/A						
Office hours						
随時対応します。メール	レなどで事前に	連絡を取ってください。	•			
On a necessary basis.	Please contact	: me by e−mail in adva	nce.			
Relations to attainmen	t objectives of	learning and education	n			
(C1) 情報・知能工学お	よびその関連	分野の理論・応用知識	を自発的に獲得	」, それらを統合的	に 活用できる	能力を身につけて
いる。						
(C1) 情報・知能工学お	よびその関連	分野の理論・応用知識	歳を自発的に獲得	し、それらを統合的	に活用できる	能力を身につけて
いる。						
(C1) 情報・知能工学お	よびその関連	分野の理論・応用知識	を自発的に獲得	し, それらを統合的	に 活用できる	前力を身につけて
いる。						
(C1) Have the skills to	voluntarily ac	quire theories and ap	plied knowledge a	bout computer sci	ence and eng	ineering as well as
related fields; and to ut	tilize such knov	vledge in an integrated	d manner			
Key words	-	- 1				
聴覚システム、聴知覚、	、音楽、音声、	計算モデル				
auditory system, sound	l perception, m	usic, speech, computa	itional model			

(M43630450)Advanced	Computer Arc	chitecture[Advanced C	omputer Archite	cture]		
Subject name[English]	Advanced Co	omputer Architecture[/	Advanced Compu	ter Architecture]		
Schedule number	M43630450		Subject area	Advanced Computer Science and Engineering	Required or elective	Elective
Time of starting a course	Spring2 term	ו	Day of the week.period	Thu.3~3	Credit(s)	1
Faculty	Graduate Pr	ogram for Master's Deg	gree		Subject grade	1~
Department Offered	Computer So	cience and Engineering			Beggining	M1
Charge teacher name[Roman alphabet mark]	佐藤 幸紀 \$	SATO Yukinori			graue	
Numbering	CMP_MAS52	2125				
Objectives of class						
The goal is to obtain th	ne knowledge o	on the advanced compu	iter architecture	seen in the state-c	of-the-art comp	outing systems.
Contents of class						
(face to face) Week 1	Introduction					
(face to face) Week 2	Fundamentals	of quantitative design	and analysis (1)			
(on-demand) Week 3 F	-undamentals o	of quantitative design a	and analysis (2)			
(on-demand) Week 5	Fundamentals (Fundamentals (of quantitative design a	and analysis (3)			
(face to face) Week 6	Memory Hiera	rchv design				
(face to face) Week 7	Summary and	discussion				
If there will be any c Spread of Corona virus	hanges regard , the course c	ding Toyohashi Univers content and evaluation o	sity of Technolog of achievement a	gy Activity Restric re subject to chang	tions Level for ge.	Preventing the
If there is any changes	about a class	schedule. I will inform	vou on Google Cl	assroom or KYOMI	LIOHO SYSTE	м
Self Preparation and R	eview	Solicidale, I will inform	you on doogle of			
To enhance a learning	effect, student	ts are encouraged to re	eview the lecture	for around 180 min	utes each.	
Review and prepare for	the lecture u	sing the provided mate	rials and referend	ce book.		
Related subjects						
N/A						
Notes for textbook						
Materials will be provid	ed, which are l	based on a text book:				
Computer Architecture	, Sixth Edition	: A Quantitative Appro	ach			
John Hennessy						
David Patterson						070
Reference 1	Book title	Computer architectu	re : a quantitative	e approach	ISBN	978- 0128119051
	Author	John L. Hennessy, David A. Patterson ; with contributions by Krste Asanović [et al.]	Publisher	Morgan Kaufmann	Publish year	2018
Notes for reference						
N/A						
Goals to be achieved						
At the end of the cours	se, students w	ill:				
1: be able to understan	d the advance	ed design concepts of n	nodern computing	g systems		
2: be able to explain tra	ade-off among	performance and effic	iency with consid	leration for power o	onsumption,	
programabilitty, and ha	rdware costs					

Evaluation of achievement

Evaluations are done by reports (100%)/

S: 90% or more out of 100 points, S:90%, A: 80% or more, B: 70% or more C: 60% or more

Examination

レポートで実施 By Report

Details of examination

N/A

Other information

N/A

Reference URL

N/A

Office hours

Before/after the class

Relations to attainment objectives of learning and education

(M43630510)Information Visualization[Information Visualization]

Subject name[English]	Information Visua	- lization[Infor	mation	Visualization]			
	M42620510 Subject area Advanced			Pequired or	Elective		
	10143030310	Subject an	0a	Computer	cleative	LIECTIVE	
				Seiemee and	000000		
				Science and			
Time of starting a source	Spring1 torm	Day of	the		Credit(a)	1	
Time of starting a course	Spring r term	week peric	din .	1010.4	Or Buil(8)	1	
Feauthy	Graduate Program	n for Master			Subject grade	1~	
Paculty Department Offered	Computer Science	and Engine	s Degri		Subject grade	M1	
Department Offered	Computer Science		ering		Degginnig		
Charge tasabar nama[Baman	亜山 敏 kilpīva	MA Shigaru			grauo		
olabobet mork]		INA Shigeru					
本講義では、大規模または多次	元のデータを効率的	りかつ効果的	に表示	する可視化の設計	手法を講述し、目的	りに応じた視覚的	
なデータ分析のワークフローを設	計する制作実習に	よって、実践	的な応り	用開発力を習得する	D _o		
This class teaches the design m	ethodology of deve	eloping data	explorat	ion tools by efficie	ntly and effectively	y visualizing huge	
size or dimension of dataset. Pra	ctical skill of develo	oping the wor	kflow o	f visual data analyti	cs is learned throu	gh the exercises.	
Contents of class							
(オンデマンド)第1週:情報可視(比の導入と概要説明	月					
(オンデマンド)第2週:相関の可補	現化1(多変量デー)	夕)					
(オンデマンド)第3调:構造の可	見化(木構造・ネット	ワーク)					
(オンデマンド)第4週・相関の可	現化2(Glyph 表示)						
(オンデマンド) 第5週・テキスト・3	を動の可視化と対影	5 操作					
(オンデマンド)第6週・理題の説	旧と制作						
 (オンデマンド)第0週: (ホペの) (オンデマンド) (第7週) (制作課題) 							
	っぷ けったいしょうしょう	F動其進の亦	市に伴	い 塔業内容セト7	(成績の評価注い)	が 再が生じる提合	
本手の利至コロノウイルへ恐未加		「刧本牛の友	アニト	い、技术内谷のみし	かり以前 の計画がにる	を更か上しる场口	
いのりまり。	n and avantian of i	-formation vi		ian			
(On demand) Week 1. Introduction			sualizat	1011			
(On demand) Week 2. Correlation	visualization of mu	litivariate dat	а				
(On demand) Week 3. Relation vis	sualization with tree	and networ	< repres	sentation			
(On demand) Week 4. Visualizatio	n of correlation usi	ng glyph					
(On demand) Week 5. Visualizatio	n of textual information	ation and tim	e-varia	tion, and interaction	าร		
(On demand) Week 6. Exercise of	developing a visua	lization tool					
(On demand) Week 7: Presentation	on of exercise						
If there will be any changes re	garding Toyohashi	University of	f Tech	nology Activity Re	strictions Level fo	or Preventing the	
Spread of Corona virus, the cour	se content and eva	luation of ac	nieveme	ent are subject to c	hange.		
Self Preparation and Review							
予習・復習のために、それまでに	講義した内容と翌週	周の講義内容	をe-ラ	ーニングシステム((Google Classroom) [.]	で公開する。	
All digital textbook are freely sup	plied on e-learning	svstem deve	loped o	n Google Classroor	n.		
Related subjects		-,					
	イニング特論						
Numerical analysis. Multivariate a	nalvsis. Advanced I	Data Mining					
Notes for textbook							
e-ラーニングシステム(Google Cl	assroom)に公開す	る雷子テキス	トを使	ヨする			
Digital textbook is supplied on an	ugie Ulassi Ulii/I-公用りる电ナノイへでで使用りる. d an an E-lastring system of Caselo Classicom						
Notes for reference		J. Google U					
生た							
Goale to be enhieved							
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八尻侯、多次元のアータを効率日	ッかつ効果的に可引 ナフ	R1L9 るアサ	ィンチン	エを理解し、アータ(川注貝を 万慮し (重)	_又 迴は可伐化ワー	
ッフローを設計 じざる 技能を省待	୬ ବ 	c					
I ne goal of this class is to teac	n aesign methodolo	bgy for efficie	ently ar	a effectively visual	izing nuge size of	multi-dimensional	
dataset, and to obtain the skill of	designing the work	tlow of visua	I data a	nalytics by conside	ring the property o	t the data.	
Evaluation of achievement							
レポート課題の合計 100 点で採点	気する。						
S:達成目標をすべて達成してお	シり、かつ中間レポー	ート,出席,お	よび制	作課題の合計点(1	00 点満点)が 90 点	i 以上	

A:達成目標を90%達成しており、かつ中間レポート、出席、および制作課題の合計点(100 点満点)が80 点以上 B:達成目標を75%達成しており、かつ中間レポート、出席、および制作課題の合計点(100 点満点)が70 点以上 C:達成目標を60%達成しており、かつ中間レポート、出席、および制作課題の合計点(100 点満点)が60 点以上 The score is calculated by the Report(Exercise) of the total of 100 points
S: 90 or more, A: 80 or more, B: 70 or more, C: 60 or more
Examination
レポートで実施
By Report
Details of examination
制作課題の発表会を講義の最終回で実施する.
Presentation of final exercise is carried out at the final lecture.
Other information
特になし
N/A
Reference URL
特になし
N/A
Office hours
随時だが、電子メールで予約をとること。
Anytime, but requires reservation by E-mail.
情報·知能工学専攻
(C)高度な知識を統合的に活用できる実践力・創造力
情報・知能工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創
造的能力を身につけている。
(C1)情報・知能工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけて
いる。
Graduate Program of Computer Science and Engineering for Master's Degree
(C) Practical and creative skills to utilize advanced knowledge in an integrated manner
Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and
creative skills to utilize suchknowledge for problem solving in an integrated manner
(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner
Key words
情報検索、情報可視化、ビジュアル情報処理
Information visualization, Visual data analytics, Visual information processing

(M43630540)Computational Intelligence in Brain System[Computational Intelligence in Brain System]

Subjects initial Edgening Confiduation an intelligent in Draft System Configuration and Advanced Computer and Engineering Elective Elective Elective Computer Science and Engineering Elective Computer Science and Engineering Elective Computer Science and Engineering Elective Elective Computer Science and Engineering Elective Elective Elective Computer Science and Engineering Elective Elective Elective Computer Science and Engineering Elective	Subject nemo[English]	Computational Int	olligonoo in Broin S		ol Intolligonoo in Pr	ain Svotam]			
Software number manual states and set of the set of t									
Computer Science and Engineering Computer below Engineering Condition Engineering Condition Engineering Faculty Graduate Program for Master's Degree Subject grade 1~ 1 Department Offered Computer Science and Engineering and the science and Engineering Beggints Beggints Beggints 1 Otherse tacher name[Roman alphabet mark] 村根 一支 MURAKOSHI Kazushi alphabet mark] Beggints Beggints 1 Numbering OMP_MASS3125 Using the science Beggints 1 Conserve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class Conserve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Computer and intelligent systems? Conserve the aim, this class offers knowledge and skills for mathematical models What is complex and intelligent systems? Conserve the aim of this complex and intelligent systems? B Conserve the aim of this defendent part of neurons (synapse). Structure of neurons, synapse, model neurons. Subation Methods Numarical acclusition methods for single neuron. Structure of neurons (synapse). Numarical acclusition methods for single neuron, neural network? Structure of neurons (synapse). Subation Methods	Schedule number	10143030340	Elective						
Image: Spring:1 term Day of the Wed3x-3 OredK(s) 1 Faculty Carduate Program for Master's Degree Subject grade 1~ Department Offered Computer Science and Engineering Beginng M1 Dehartment Offered Computer Science and Engineering Beginng M1 Objectives of class CMP_MASS3125 Defective of class Traction of this class is to understand complex and intelligent systems. To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contract of class The aim of this class is to understand complex and intelligent systems. To achieve the and Application-oriented Mathematical Models A Introduction Fargineera and Application-oriented Mathematical Models Mathematical modeling and simulation methods. Contract of class Fargineera and Application-oriented Mathematical Models Mathematical Science and artificial neural networks? C. Model Neuroscience and Application-oriented Mathematical Models Mathematical Science and Scienc				elective					
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Image: Carduate Program for Master's Degree Subject grade 1~ Department Offered Computer Science and Engineering Beggining grade Mil Charge teacher nameRhoman alphabet madi 村越 ー 支 MURAKOSHI Kazushi Mumbering Mumbering Mil Numbering CMP_MASS3125 Objectives of class To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class Contents of class To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class Contents of class To achieve the aim of this class offers knowledge and skills for mathematical Models What is computational Neuroscience and Artificial neural network? A. Introduction Mumocical class Numerical calculation methods for single neuron. F. Simulation Environments Simulation Methods Numerical calculation methods for single neuron. F. Simulation Environments Simulation and demonstration of simulation environments such as NEURON and GENESIS. S. Self-organizing S. Self-organizing	Time of starting a course	Spring1 term	Day of the	Wed.3~3	Credit(s)	1			
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Department Offered Computer Science and Engineering Beggining M1 Charge teacher nameRoman alphabet mark1 村越 一文 MURAKOSHI Kazushi Murbering	Faculty	Graduate Progran	n for Master's Degre	ee	Subject grade	1~			
The provide the set of the set	Department Offered	Computer Scienc	e and Engineering		Beggining	M1			
Charge teacher neme[]Channa johabet mat] 村越 一支 MURAKOSHI Kazushi Numbering CMP_MAS53125 Doljectives of class The aim of this class is to understand complex and intelligent systems. To a chieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class To Achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class To Achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Contents of class To Achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Content of class Contents of class A. Introduction Matie sompatiational Neuroscience and artificial neural networks? C. Model Neurons Structure of neurons, synapse, model neurons. D. Learning at connected part of neurons (synapse) Synaptic plasticity, spike-timing-dependent plasticity (STDP). E. Simulation Methods Structure of neurons (synapse) Numerical calculation					grade				
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Objectives of class The sim of this class is to understand complex and intelligent systems. To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Contents of class Fx*Pon 新型コナウィルス感染拡大防止のための活動基準の変更に伴い、投業内容および成績の評価法に変更が生じる場合があります。」 技術を読むます。」 授業実施形態が変更になる場合は、GoogleClassroom または教務情報システムより通知します。 A. Introduction What is complex and intelligent systems? Outline of the brain system. B. Computational Neuroscience and Application-oriented Mathematical Models What is computational Neuroscience and Application-oriented Mathematical Models What is computational Neuroscience and artificial neural networks? C. Model Neurons Structure of neurons, synapse, model neurons. D. Learning at connected part of neurons (synapse) Synaptic plasticity, spike-timing-dependent plasticity (STDP). E. Simulation Environments Explanation and demonstration of simulation environments such as NEURON and GENESIS. G. Self-organizing What is self-organizing? Winner Takes All, Self-organizing map (SOM) H. Reinforcement Learning I. Summary (face to face)Ist week: A (on-demand)2nd week: B (on-demand)2nd week: CB (on-demand)2nd week: CB (on-demand)2nd	Numbering	CMP_MAS53125							
The aim of this class is to understand complex and intelligent systems. To achieve the aim, this class offers knowledge and skills for mathematical modeling and simulation methods. Content of class 「ネ学の新型コロナウイルス感染拡大防止のための活動基準の変更に伴い、授衆内容および成績の評価法に変更が生じる場 合がなります。」 授業実施形態が変更になる場合は、GoogleClassroom または教務情報システムより通知します。 A. Introduction What is complex and intelligent systems? Outline of the brain system. B. Computational Neuroscience and Application-oriented Mathematical Models What is complex and intelligent systems? Outline of the brain system. B. Computational Neuroscience and Application-oriented Mathematical Models What is complex and intelligent systems? Outline of the brain system. B. Computational Neuroscience and artificial neural networks? C. Model Neurons Structure of neurons. synapse, model neurons. D. Learning at connected part of neurons (synapse) Synaptic plasticity, spike-timing-dependent plasticity (STDP). E. Simulation Environments Explanation and demonstration of simulation environments such as NEURON and GENESIS. G. Self-organizing What is self-organizing? Winner Takes All, Self-organizing map (SOM) H. Reinforcement Learning What is reinforcement Learning in the brain, demonstration of reinforcement learning for controlling robot I. Summary (face to face)1st week: A (on-demand)3rd week: C (on-demand)3rd week: C (on-demand)3rd week: E F (on-demand)3rd week: H I Self Preparation and Review Related subjects Notes for testbook Handouts are distributed. Notes for testbook Handouts are distributed. Notes for reference Coals to be achieved - Know complex and intelligent mathematical models, and understand them at the degree which you can simult them by your	Objectives of class								
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programming or by using simulation environment.

- Can explain technical terms of complex and intelligent mathematical models.
- Master numerical calculation methods that are used in complex and intelligent mathematical models.

Evaluation of achievement

Report 100% + alpha (Consideration, comment, and opinion in each content (A-H))

Examination

その他 Other

Details of examination

Other information

Even school year: Murakoshi, F-507, ext. 6899, mura [at] tut.jp

Reference URL

http://www.ci.cs.tut.ac.jp/~mura/

Office hours

After this class or

post question or consultation to the google classroom.

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力

情報・知能工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能力を身につけている。

(C1) 情報・知能工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about computer science and engineering as well as related fields; and have the practical and creative skills to utilize suchknowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about computer science and engineering as well as related fields; and to utilize such knowledge in an integrated manner

(M44610050)Seminar on Applied Chemistry and Life Science 1[Seminar on Applied Chemistry and Life Science 1]

Subject name[English]	Subject name[English] Seminar on Applied Chemistry and Life Science 1[Seminar on Applied Chemistry and L							
Schedule number	M44610050	Subjec	Subject area		Advanced Applied Chemistry and Life Science	Required elective	or	Required
Time of starting a course	Year	Day week,p	of eriod	the	Intensive	Credit(s)		3
Faculty	Graduate Progra	m for Mas	ster's	Degre	e	Subject grad	e	1~
Department Offered	Applied Chemistr	y and Life	e Scie	nce		Beggining		M1
	0. 万批办千日			_		grade		
Charge teacher name_Roman	54糸教務安員4	kei kyom	u lin-t	5				
alphabet mark								
	GHE_IMA333013							
This course will provide the stud	lents with opportu	nities to	study	on h	is/her research su	bjects on appl		chemistry and life
science by reading textbooks an	d scientific papers	s under th	he gui	dance	e of his/her superv	visor. The aim	of t	he lessen for the
students is to learn knowledge an	d presentation skil	ls require	ed for I	his/h	er research in the s	seminar as well	ast	to deepen his/her
Understanding of applied chemistr	y and life science.							
The students will be required to	and touther line	I nonere :		. h	that language the	lononces		lly English which
The students will be required to	read textbooks and	a papers v	writter	n by c	other language than	Japanese, es		ally English, which
Self Preparation and Review	sor, and to report a		ss uee	ргу о	n nis/ ner research		Sem	inar.
Seminar on Applied Chemistry an Thesis Research on Applied Cher All other relevant subjects in App Notes for textbook Supervisor will recommend textbook Notes for reference Goals to be achieved To acquire basic knowledge on ap To understand the contents of so To be able to make oral and post	d Life Science 2 nistry and Life Science lied Chemistry and poks, papers, and re oplied chemistry and ientific papers in a er presentations re	ence I Life Scie esearch n d life scie given fie elevant to	ence nateria ence Id of a paper	als to applie rs he/	students. d chemistry and life ⁄she has read	e science		
The evoluation is based on the		to utbool co	ام می م		tific nonovo dioovo	alawa wanawta	م م م	nuccontations of
his /her research in the seminar	dis /ber supervisor		s ariu s tha c	scien	und papers, discus	sions, reports	and	presentations of
S: 90 or higher (out of 100 points))	ovaluates	5 018 5	20016	J.			
A: 80 or higher (out of 100 points)).							
B: 70 or higher (out of 100 points).							
C: 60 or higher (out of 100 points)							
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
Supervisor(s)								
Reference URL								
http://chem.tut.ac.jp/en/								
Office hours								
Students are encouraged visiting	by appointment.							
Relations to attainment objective	s of learning and e	ducation						
(C) Practical and creative skills to	utilize advanced	knowledge	e in an	inte	grated manner			

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Key words

(M44610060)Seminar on Applied Chemistry and Life Science 2[Seminar on Applied Chemistry and Life Science 2]

	Consistent on Angli							
Subject name[English]	Seminar on Applied Chemistry and Life Science 2[Seminar on Applied Chemistry and Life							
<u> </u>	Science 2							
Schedule number	M44610060	Subject area	Advanced	Required or	Required			
			Applied	elective				
			Chemistry and					
			Life Science					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	3			
		week,period						
Faculty	Graduate Program	n for Master's De	gree	Subject grade	2~			
Department Offered	Applied Chemistr	y and Life Science	•	Beggining	M2			
				grade				
Charge teacher name[Roman	S4系教務委員 4	kei kyomu Iin−S						
alphabet mark]								
Numbering	CHE_MAS65015							
Objectives of class								
Based on the Seminar on Appli	ied Chemistry and	Life Science 1.	this course will fur	ther provide the s	tudents with the			
opportunity to study on his/her	research subject in	applied chemistr	and life science by	reading textbooks	and papers under			
the guidance of his/her supervis	sor. The students	will learn the kno	wledge and the pre	sentation skills rec	uired for his/her			
research in the seminar								
Contents of class								
The students will be required to	read textbooks and	naners written h	, other language that	, lananese, esnecia	ally English which			
are suggested by his/her supervise	sor and to report a	nd discuss deeply	on his /her research	subject in the sem	inar			
Self Preparation and Paview	sor, and to report a	na discuss deepiy		subject in the sem				
Related subjects								
Seminar on Applied Chemistry an	d Life Science 1							
Thesis Research on Applied Cher	nistry and Life Scie	ence						
All other relevant subjects in app	lied chemistry and	life science						
Notes for textbook								
Supervisor will recommend textbo	ooks, papers, and re	esearch materials	to students.					
Notes for reference								
Goals to be achieved								
To acquire basic knowledge on an	plied chemistry an	d life science						
To understand the contents of so	cientific naners in a	given field of ann	ied chemistry and life	e science				
To be able to make oral and post	er presentations re	levant to papers h	e∕she has read.					
Evaluation of achievement								
The evaluation is based on the	scores of reading t	extbooks and sci	entific naners discu	ssions reports and	presentations of			
his/her research in the seminar	His/her supervisor	evaluates the sco	res					
S: 90 or higher (out of 100 points)								
A: 80 or higher (out of 100 points))							
B: 70 or higher (out of 100 points)							
C: 60 or higher (out of 100 points)							
Examination	/							
試験期間中には何も行わたい								
None during exam period								
Details of examination								
Details of examination								
Other information								
Supervisor(s)								
Reference URL								
http://chem.tut.ac.jp/en/								
Office hours								
Students are encouraged visiting	Students are encouraged visiting by appointment.							
Relations to attainment objective	s of learning and e	ducation						
-	-							

Key words

(M44610070)Thesis Research on Applied Chemistry and Life Science[Thesis Research on Applied Chemistry and Life Science]

Subject name[English]	Thesis Research on Applied Chemistry and Life Science[Thesis Research on Applied								
	Chemistry and Lif	Chemistry and Life Science]							
Schedule number	M44610070	Subject area		Advanced Applied Chemistry and Life Science	Required or elective	Required			
Time of starting a course	2Years	Day of	the	Intensive	Credit(s)	6			
		week,perio	d						
Faculty	Graduate Program	n for Master'	s Degre	e	Subject grade	1~			
Department Offered	Applied Chemistry	y and Life Sc	ience		Beggining	M1, M2			
					grade				
Charge teacher name[Roman	S4系教務委員, 4	1系各教員 4	kei kyor	mu Iin−S, 4kei kakul	kyouin				
alphabet mark]									
Numbering	CHE_MAS68015								

Objectives of class

In the course, the students will perform advanced researches on applied chemistry and life science under the direction of his/her supervisor in the laboratory. The aims of this lessen are to acquire the knowledge and experimental and analytical skills required for his/her research subject, to learn the scientific and social importance of his/her subject by researching for related studies by others, and to write a master's thesis. The students will acquire the skills and capacities of presentation by discussing in the final review of his/her Master's Thesis.

Contents of class

The students are required to have his/her research subject under the direction of his/her supervisor and perform his/her research by acquiring the experimental and analytical skills in the laboratory. The students will be expected to learn the scientific and social background of his/her research subject by collecting and reading the references relating to his/her research. The results from his/her research must be described as a master's thesis. The students must also present the results from his/her research, discuss, and answer the questions with the reviewers in the final master's dissertation defense. **Self Preparation and Review**

Related subjects

Seminar on Applied Chemistry and Life Science 1

Seminar on Applied Chemistry and Life Science 2

Notes for textbook

Supervisor will recommend textbooks, papers, and research materials to students.

Notes for reference

Goals to be achieved

To acquire basic knowledge on applied chemistry and life science

To master experimental techniques and analytical skills required for research on a given field of applied chemistry and life science

To be able to present and discuss on the results of his/her research

To be able to make safety control in experimental work

Evaluation of achievement

The score of the course is based on his/her master's thesis and the presentation in the final review of his/her master's thesis (the quality of his/her research, presentation skills, discussions and answering the questions on his/her presentation etc).

S: 90 or higher (out of 100 points),

A: 80 or higher (out of 100 points),

B: 70 or higher (out of 100 points),

C: 60 or higher (out of 100 points) Examination

None during exam period

Details of examination

Other information

Supervisor

Reference URL

http://chem.tut.ac.jp/en/

Office hours

Students are encouraged visiting by appointment.

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力

応用化学・生命工学およびその関連分野に関する高度な知識を修得し,それらを課題解決のために統合的に活用できる実践 的・創造的能力を身につけている。

(C1) 応用化学・生命工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C2) 応用化学・生命工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。
 (D)グローバルに活躍できるコミュニケーションカ

グローバルに変化する社会が抱える課題にチームとして協調して取り組む中で、自らの考えや成果を効果的に表現するコミュニケーションカを身につけている。

(D1) 論文, ロ頭及び情報メディアを通じて, 自分の論点や考えなどを国の内外において効果的に表現・発信し, コミュニケーションする能力を身につけている。

(D2) チーム内の個々の要員の価値観を互いに尊重するとともに、協調して、チームとしての目標達成に寄与できる高い能力を 身につけている。

(E)最新の技術や社会環境の変化に対する探究心と持続的学習力

社会,環境,技術等の変化に対応して,生涯にわたって自発的に計画し学習する能力を身につけている。

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilizesuch knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and developmentand put them into practice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changesin society, environment and technology

Key words

(M44610070)Thesis Research on Applied Chemistry and Life Science[Thesis Research on Applied Chemistry and Life Science]

Subject name[English]	Thesis Research on Applied Chemistry and Life Science[Thesis Research on Applied									
	Chemistry and Lif	Chemistry and Life Science]								
Schedule number	M44610070	Subject area		Advanced Applied Chemistry and Life Science	Required or elective	Required				
Time of starting a course	2Years	Day of	the	Intensive	Credit(s)	6				
		week,per	od							
Faculty	Graduate Program	n for Maste	r's Degre	e	Subject grade	1~1				
Department Offered	Applied Chemistry	/ and Life S	cience		Beggining	M1, M2				
			grade							
Charge teacher name[Roman	S4系教務委員, 4	S4系教務委員, 4系各教員 4kei kyomu Iin-S, 4kei kakukyouin								
alphabet mark]										
Numbering	CHE_MAS68015	CHE_MAS68015								

Objectives of class

In the course, the students will perform advanced researches on applied chemistry and life science under the direction of his/her supervisor in the laboratory. The aims of this lessen are to acquire the knowledge and experimental and analytical skills required for his/her research subject, to learn the scientific and social importance of his/her subject by researching for related studies by others, and to write a master's thesis. The students will acquire the skills and capacities of presentation by discussing in the final review of his/her Master's Thesis.

Contents of class

The students are required to have his/her research subject under the direction of his/her supervisor and perform his/her research by acquiring the experimental and analytical skills in the laboratory. The students will be expected to learn the scientific and social background of his/her research subject by collecting and reading the references relating to his/her research. The results from his/her research must be described as a master's thesis. The students must also present the results from his/her research, discuss, and answer the questions with the reviewers in the final master's dissertation defense. **Self Preparation and Review**

Related subjects

Seminar on Applied Chemistry and Life Science 1

Seminar on Applied Chemistry and Life Science 2

Notes for textbook

Supervisor will recommend textbooks, papers, and research materials to students.

Notes for reference

Goals to be achieved

To acquire basic knowledge on applied chemistry and life science

To master experimental techniques and analytical skills required for research on a given field of applied chemistry and life science

To be able to present and discuss on the results of his/her research

To be able to make safety control in experimental work

Evaluation of achievement

The score of the course is based on his/her master's thesis and the presentation in the final review of his/her master's thesis (the quality of his/her research, presentation skills, discussions and answering the questions on his/her presentation etc).

S: 90 or higher (out of 100 points),

A: 80 or higher (out of 100 points),

B: 70 or higher (out of 100 points),

C: 60 or higher (out of 100 points) Examination

試験期間中には何も行わない

None during exam period

Details of examination

Other information

Supervisor

Reference URL http://chem.tut.ac.jp/en/ Office hours Students are encouraged visiting by appointment. Relations to attainment objectives of learning and education

Key words

(M4461007T)Thesis Research on Applied Chemistry and Life Science[Thesis Research on Applied Chemistry and Life Science]

Subject name[English]	Thesis Research on Applied Chemistry and Life Science[Thesis Research on Applied									
	Chemistry and Life	Chemistry and Life Science]								
Schedule number	M4461007T	Subject	t area	1	Advanced	Required or	Required			
					Applied	elective				
					Chemistry and					
					Life Science					
Time of starting a course	Year	Day	of	the	Intensive	Credit(s)	6			
		week,p	eriod							
Faculty	Graduate Program	for Mas	ter's	Degre	e	Subject grade	2~2			
Department Offered	Applied Chemistry	and Life	e Scie	nce		Beggining	M2			
						grade				
Charge teacher name[Roman	S4系教務委員, 4	S4系教務委員, 4系各教員 4kei kyomu Iin-S, 4kei kakukyouin								
alphabet mark]										
Numbering	CHE_MAS68015									

Objectives of class

In the course, the students will perform advanced researches on applied chemistry and life science under the direction of his/her supervisor in the laboratory. The aims of this lessen are to acquire the knowledge and experimental and analytical skills required for his/her research subject, to learn the scientific and social importance of his/her subject by researching for related studies by others, and to write a master's thesis. The students will acquire the skills and capacities of presentation by discussing in the final review of his/her Master's Thesis.

Contents of class

The students are required to have his/her research subject under the direction of his/her supervisor and perform his/her research by acquiring the experimental and analytical skills in the laboratory. The students will be expected to learn the scientific and social background of his/her research subject by collecting and reading the references relating to his/her research. The results from his/her research must be described as a master's thesis. The students must also present the results from his/her research, discuss, and answer the questions with the reviewers in the final master's dissertation defense. **Self Preparation and Review**

Related subjects

Seminar on Applied Chemistry and Life Science 1

Seminar on Applied Chemistry and Life Science 2

Notes for textbook

Supervisor will recommend textbooks, papers, and research materials to students.

Notes for reference

Goals to be achieved

To acquire basic knowledge on applied chemistry and life science

To master experimental techniques and analytical skills required for research on a given field of applied chemistry and life science

To be able to present and discuss on the results of his/her research

To be able to make safety control in experimental work

Evaluation of achievement

The score of the course is based on his/her master's thesis and the presentation in the final review of his/her master's thesis (the quality of his/her research, presentation skills, discussions and answering the questions on his/her presentation etc).

S: 90 or higher (out of 100 points),

A: 80 or higher (out of 100 points),

B: 70 or higher (out of 100 points),

C: 60 or higher (out of 100 points) Examination

試験期間中には何も行わない

None during exam period

Details of examination

Other information

Supervisor(s)

Reference URL

http://chem.tut.ac.jp/en/

Office hours

Students are encouraged visiting by appointment. Relations to attainment objectives of learning and education

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Key words

(M44610080)Seminar on Applied Chemistry and Life Science[Seminar on Applied Chemistry and Life Science]

Subject name[English]	Seminar on Applied Chemistry and Life Science[Seminar on Applied Chemistry and Life							
	Science]							
Schedule number	M44610080	Subject area	Advanced	Required or	Required			
			Applied	elective				
			Chemistry and					
			Life Science					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6			
		week,period						
Faculty	Graduate Program	n for Master's Degre	ee	Subject grade	2~2			
Department Offered	Applied Chemistr	y and Life Science		Beggining	M2			
				grade				
Charge teacher name[Roman	S4系教務委員 4	kei kyomu Iin−S						
alphabet mark]								
Numbering	CHE_MAS68015							
Objectives of class								
This course will provide the stud	lents with the oppo	ortunity to study on	his/her research s	subject in applied o	hemistry and life			
science by reading textbooks and	d papers under the	guidance of his/her	r supervisor. The st	udents will learn t	ne knowledge and			
the presentation skills required fo	or his∕her research	in the seminar.						
Contents of class								
The students will be expected	to read textbooks	and papers writte	en by foreign langu	uage that are indi	cated by his/her			
supervisor, and report and discus	s deeply on his/he	r research subject ir	the seminar.	5				
Self Preparation and Review		-						
Polotod subjects								
Thesis Research on Applied Cher	histry and Life Scie	ince						
All other relevant subjects in App	lied Chemistry and	Life Sciences						
Notes for textbook								
Supervisor will recommend textbo	ooks and papers to	students.						
Notes for reference								
Goals to be achieved								
To acquire basic knowledge on ap	plied chemistry an	d life science						
To understand the contents of so	cientific papers in a	given field of applie	d chemistry and life	e science				
To be able to make oral and post	er presentations re	levant to papers he	∕she has read					
Evaluation of achievement								
The evaluation is based on the	scores of reading	papers, discussions,	reports and prese	ntations of his/he	r research in the			
seminar. His/her supervisor evalu	ates the scores.							
S: 90 or higher (out of 100 points)).							
A: 80 or higher (out of 100 points).							
B: 70 or higher (out of 100 points),							
C: 60 or higher (out of 100 points)							
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
http://chem.tut.co.in/cn/								
Students are encouraged visiting	by appointment							
Belations to attainment chiesting	by appointment.	ducation						
		uudauon						
(C) Practical and creative skills to	o utilize advanced k	nowledge in an inte	grated manner					

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(D) Communication skills for global success

Have the communication skills to effectively express one's own ideas and results while working on the issues faced by a globally changing society in cooperation with other team members

(D1) Have the skills to effectively express and communicate one's own ideas as well as points in question at home and abroad through papers, oral reports or information media

(D2) Have high-level skills to mutually respect the values of individual team member; and to contribute to the team's achievements through working cooperatively with other team members

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Key words

(M44630100)Special Topics in Applied Organic Chemistry[Special Topics in Applied Organic Chemistry]

Subject name[English]	Special Topics in	Applied Organ	nic Ch	emistry[Special Tor	nics in Applied Org	anic Chemistry]		
	M44630100	Subject area	•		Pequired or	Flective		
	10144000100		a	Applied	elective	LICCUVE		
				Applied Chamistra and	01000140			
				Life Science				
Time of starting a source	Service of terms	Day of	44.0			1		
Time of starting a course	Spring i term	Day of	the	Tue.5~5	Great(s)	1		
Faculty	Graduate Program	n for Master's	Degr		Subject grade	1~		
Paculty Department Offered	Applied Chemistri	n for Masters	Degre	56	Subject grade	M1		
	Applied Offeniist		51100		grade	1411		
Charge teacher name[Roman	岩佐 精一 些宣	一考 IWASA	Seiii	SHIBATOMI Kazuta	ka			
alphabet mark]		- III/(0/(Coyi,					
Numbering	CHE MAS53225							
To provide you with a working kno	owledge of advance	a synthesis of	mole	cular materials.				
	c.,				C			
This course includes the detail of	t the most recent	progress in mo	odern	synthetic applicatio	on of catalysis, org	anometallics, and		
the total synthesis of natural proc	ducts on the basis (of retrosynthe	tic an	alysis.				
(face to face) 1. Total synthesis	of bioactive organic	c compounds. ((Iwasa	a)				
(on-demand) 2. Advanced mode	rn synthetic organie	c reactions usi	ing tra	ansition metals. (Iwa	sa)			
(face to face) 3. Basic concept of	foxidative addition	and reductive	elimir	nation in catalytic cy	/cles. (Iwasa)			
(on-demand) 4. Synthetic applica	ations of asymmetri	c synthesis an	nd asy	mmetric catalysts.	(Iwasa)			
(face to face) 5. Basic concept o	of Lewis acid cataly	st and organod	cataly	st. (Shibatomi)				
(on-demand) 6. Advanced Lewis a	acid catalysis in org	anic synthesis	s. (Shi	batomi)				
(on-demand) 7. Advanced organo	catalysis in organic	synthesis. (Sh	nibato	mi)				
If there will be any changes regard	ding Toyohashi Univ	versity of Tech	hnolog	w Activity Restricti	ons Level for			
Preventing the Spread of Corona	virus the course o	ontent and eve	aluati	on of achievement a	ure subject to chan	6		
Treventing the opread of corona			aidació			go.		
			· ~					
If there is any changes about a ci	ass schedule, it will	be informed v	/ia Go	ogle Classroom or I	CTOMU JUHU ST	STEM.		
Ser Preparation and Review								
Preparation and review of the cla	sses are strongly re	ecommended.						
e.g. 90 min for the preparation an	d 90 min for the rev	view per each	90 mi	n class.				
Related subjects								
Subjects related to Organic Chem	nistrv							
Notes for textbook	liotiy							
No textbook is required								
Some of information in WebCT wi	ll he heln for your i	understanding (on thi	s course				
	in be notp for your c			0 000100.				
Natao fan nafananaa								
N/A								
Goals to be achieved								
A firm understanding on catalyst, stereochemistry, reaction mechanism, and their application for the synthesis of molecular								
materials is achieved.								
	fin tournal		A		aaad			
A design of neural surveys in the	inc journals such as	5 J.A.C.S and A	rigev	v. Onem. will be imp	useu.			
A design of novel organic molecul	ar material.							
Evaluation basis] Students who a	ttend all classes wi	ii be evaluated	as to	niows:				
S: Achieved all goals and obtained	total points of exa	am and reports	s, 90 c	or higher (out of 100	points).			
A: Achieved 80 % goals and obtain	ned total points of e	exam and repor	rts, 80	J or higher (out of 1	UU points).			
B: Achieved 70 % of goals and obt	ained total points o	ot exam and re	ports	, /U or higher (out o	† 100 points).			
C: Achieved 60 % of goals and obt	tained total points o	of exam and re	ports	, 60 or higher (out o	t 100 points).			
Examination	Examination							

レポートで実施
By Report
Details of examination
N⁄A
Other information
For more information:
Seiji Iwasa: room (B-506), e-mail (iwasa@ens.tut.ac.jp)
Kazutaka Shibatomi: room (B-507), e-mail (shiba@ens.tut.ac.jp)
Reference URL
http://www.siorgchem.ens.tut.ac.jp/index.html
http://ens.tut.ac.jp/orgchem/
Office hours
anytime.
Relations to attainment objectives of learning and education
↓ >>(C1) 広田化学・生命工学およびその関連分野の理論・広田知識を自発的に獲得し、それらを統合的に活用できる能力を身に
パロアルが加速す エーディー たいのの ビジス ほう 生命 から ない ひょう しょう とう しょう とう しょう こう しょう こう しょう こう
C1
(C1) Have the shills to velocitatily acquire theories and applied knowledge about applied chemistry and life ecience as well as
(GI) have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and me science as well as
Ney words

(M44630110)Developmental Neuroscience[Developmental Neuroscience]

Subject name[English]	Developmental Ne	euroscier	nce[D	evelop	mental Neuroscien	ce]		
Schedule number	M44630110	Subjec	t area	a	Advanced	Required or	Elective	
					Applied	elective		
		Chen		Chemistry and				
					Life Science			
Time of starting a course	Spring2 term	Day	of	the	Tue.2~2	Credit(s)	1	
	0	week,p	period	<u> </u>		<u></u>	1	
Faculty	Graduate Progran	n for Mas	sters	Degre	e	Subject grade	1~ 	
Department Offered	Applied Chemistry	y and Life	e Scie	ence		Beggining grade	MI	
Charge teacher name[Roman	吉田 祥子,沼野	利佳 YC	OSHID	DA Sa	chiko, NUMANO Rił	(a		
alphabet mark]								
Numbering	CHE_MAS53225							
Objectives of class								
Objective of class is to develop	a new technology	for dete	ection	ofn	euronal function in	your brain. We de	eal with neuronal	
property and development of neu	ronal circuit, and dis	scuss ap	plicab	ility a	nd problem of your	ideas.		
Contents of class								
S Yoshida,								
Week1 (remote simultaneous inte	ractive): Properties	of neuro	onal ce	ells				
Week2 (remote simultaneous inte	ractive): Electrical f	unction a	and io	n trar	isport			
Week3 (remote simultaneous inte	ractive): Chemical i	nformatio	on tra	nspor	t			
Week4 (remote simultaneous inte	ractive): Developme	ent of neu	uronal	l circu	it			
Week5 (remote simultaneous inte	ractive): Detection	of chemi	cal inf	format	tion			
Week6 (remote simultaneous inte	ractive): Detection	of electri	ical in	forma	tion			
Week7 (remote simultaneous inte	ractive): Detection	of cortica	al dev	elopm	ient			
R Numano,								
We pick up topics from chapter2	in Neuron To Brain	4th Ed.						
(8)Neural inducer in vertebrates	face to face (Regul	ar face t	o face	e class	s)			
(9)Notch and Delta genes on-de	mand(You can take	the class	s whe	never	you want.)			
(10)Polarity and Segmentation on	-demand(You can t	ake the o	class	whene	ever you want.)			
(11)Hox gene function in the nerv	ous system on-den	nand(You	ı can [.]	take t	he class whenever	you want.)		
(12)Hox gene function in the nerv	ous system on-den	nand(You	ı can [.]	take t	he class whenever	you want.)		
(13)Topic & Discussion face to fa	ace face to face (R	egular fa	ce to	face	class)			
If there will be any changes regard	ding Toyohashi Univ	ersity of	f Tecł	nnolog	y Activity Restricti	ons Level for		
Preventing the Spread of Corona	virus, the course c	ontent ar	nd eva	aluatio	on of achievement a	re subject to chan	ge.	
Self Preparation and Review								
学習効果を上げるため,教科 書	等の該当箇所を参考	考し, 授業	業内容	に関	する予習(90 分程度	夏)を行 い, 授業内	内容に関する復習	
(90 分程度)を行うことが望ましい。	,							
90 minutes of preparation and 90	minutes of review a	are gener	rally r	equire	d for each class of	90 minutes.		
Related subjects								
A firm understanding on fundame	ntal biochemistry ar	nd therm	odyna	mics	will be necessary.			
Web-based text will be distributed	3.							
/								
(Reference)	(Reference)							
From Neuron To Brain 4th Ed, Nicholls et. al. (Sinauer, 2001)								
Notes for reference								
行になし								
uoais to de acniéved 小旦エの抽線も色の ¹⁹⁴²								
リ 取 新 の 仲 栓 科 字 の 埋 解 の 現 本 の 利 尚 杉 吉 玉 十 7 問 野 ナ +		+ 7						
2)現在の科子が 直面する 問題を 記	定起し、 独目で考察	9 60						
1) You can understand neuroscier	nce Topics .							
2) You can consider the problem	in life science.							

Evaluation of achievement

Yoshida S.

Report: 100%

S: Achieved all goals and obtained points of reports and discussions, 90 or higher (out of 100 points).

A: Achieved several goals and obtained points of reports and discussions, 80 or higher (out of 100 points).

- B: Achieved two goals and obtained points of reports and discussions, 70 or higher (out of 100 points).
- C: Achieved one goal and obtained points of reports and discussions, 60 or higher (out of 100 points).

Numano

Term report; 100%

- S: Achieved all goals and obtained points of reports and discussions, 90 or higher (out of 100 points).
- A: Achieved several goals and obtained points of reports and discussions, 80 or higher (out of 100 points).
- B: Achieved two goals and obtained points of reports and discussions, 70 or higher (out of 100 points).
- C: Achieved one goal and obtained points of reports and discussions, 60 or higher (out of 100 points).

Examination

レポートで実施 By Report

Details of examination

Other information

S Yoshida Room: B-406, E-mail:syoshida@tut.jp R Numano

Room: G-407, E-mail:numano@tut.jp

Reference URL

https://lms.imc.tut.ac.jp

Office hours

Make an appointment by e-mail.

Relations to attainment objectives of learning and education

>>(C1) 応用化学・生命工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner Key words

Neuroscience
(M44630200)Advanced Supercritical Fluid Engineering[Advanced Supercritical Fluid Engineering]

Subject name[English]	Advanced Superc	ritical Fluid	Enginee	ring[Advanced Supe	ercritical Fluid Engi	neering]			
Schedule number	M44630200	Subject a	rea	Advanced	Required or	Elective			
	Applied			elective					
				Chemistry and					
				Life Science					
Time of starting a course	Spring2 term	Day of week,peri	the od	Fri.2~2	Credit(s)	1			
Faculty	Graduate Progran	n for Maste	's Degr	ee	Subject grade	1~			
Department Offered	Applied Chemistry	y and Life S	cience		Beggining	M1			
					grade				
Charge teacher name[Roman	大門 裕之 DAIM	ON Hiroyuki							
alphabet mark]									
Numbering	CHE_MAS53225								
Objectives of class									
Based on Supercritical Fluid	Engineering and E	nvironment	al Chen	nical Engineering, p	ractical philosoph	y, creativity and			
leadership of engineer are improv	ved during this cou	rse. The to	pics ar	e mainly waste mar	agement and utiliz	ation of biomass.			
Environmental issue is widely disc	cussed to obtain the	e knowledge	and org	ganizing skill of com	prehensive process	s or society.			
Contents of class									
(face to face) 1st Summarv									
(on-demand) 2nd History									
(face to face) 3rd Physical prope	erty								
(on-demand) 4th Application o	f Supercritical Wate	er Technolo	gies 1						
(face to face) 5th Application of	Supercritical Water	^r Technologi	es 2						
(on-demand) 6th Application o	f Supercritical Wate	er Technolo	gies 3						
(face to face) 7th Application of	Supercritical Carbo	on dioxide T	echnolo	gies 1					
(face to face) 8th Application of	Supercritical Carbo	on dioxide T	echnolo	gies 2					
Self Preparation and Review									
N⁄A									
Related subjects									
-									
Advanced Analytical Separation	Chamistry Advance	ad Inductric		n /					
Notes for textbook	Onemistry, Advance			59					
1 Analytical Supercritical Fluid C	hromatography and	Extraction							
edited by MIL Lee and K F Mar	kides 1990								
Chromatography Conference Inc.									
2 Hyphenated Techniques in Sun	ercritical Fluid Chro	omatography	/ and Ex	traction					
edited by K. Jinno 1992		omacograph							
Elsevier									
Notes for reference									
Goals to be achieved									
1 To understand Superaritical E	luid Technology								
2 To improve engineering skill	and rechnology								
3 To obtain the knowledge about	It Environmental pr	ohlem esno	cially for	waste managemen					
Evaluation of achievement		coloni cohe	Juny 101	maste managemen	-				
Beend on Dont									
Based on Report									
90%;5									
00%;A 70%;P									
ли»; Б 60% · С									
50%; C									
Examination									

レポートで実施 By Report

Details of examination

N⁄A

Other information

Office : Builing G, Floor 6th, Room 602 Tel:0532-44-6905 Email:daimon@tut.jp

Reference URL

http://water.eco.tut.ac.jp/class.html (English version under construction)
Office hours

After the class or anytime when you make an appointment through Email **Relations to attainment objectives of learning and education**

(D)

(A)幅広い人間性と考え方
人間社会を地球的な視点から多面的にとらえるグローバルな感性を持ち、人間と自然との共生、公共の福祉について考える能力を身につけている。
(B)技術者・研究者としての正しい倫理観と社会性
上級技術者・研究者として社会的・倫理的責任を有し、社会における技術的課題を設定・解決・評価する能力を身につけている。
(C)高度な知識を統合的に活用できる実践力・創造力
応用化学・生命工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能力を身につけている。
>>(C1)応用化学・生命工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。

(D)

(A) Personality and outlook with a broad perspective

Have a mindset to see human society from various angles with a global perspective; and the ability to consider the symbiosis between humans and nature as well as public welfare

(B) Sound ethics and social awareness as advanced-level engineers and researchers

Be conscious of specialized and ethical responsibilities as advanced-level engineers and researchers; and have the ability to set, solve and evaluatetechnical issues in society

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilizesuch knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

Key words

Supercritical Fluids, Resource Recovery, Material and Energy Balance, Process Engineering

(M44630290)Advanced Biomaterials Engineering[Advanced Biomaterials Engineering]

Subject	Advanced Biomaterials Engineering[Advanced Biomaterials Engineering]								
name[English]	M44620200		Out is at succe	Advanced	Description of the second	Ele etter			
Schedule number	M44030290		Subject area	Advanced	Required or	Elective			
				Applied Chamistry and	elective				
				Life Seienee					
Time of starting a	Spring? torm		Day of the		Credit(a)	1			
nime of scarcing a	Springz term		Day of the	1110.3~3	Great(s)	1			
Course	Graduata Bra	arrom for Mostor's D	week,period		Subject	1~			
racuity	Graduate Pro	ogram for Master's D	egree		Subject	1~			
Department Offered	Applied Chan	niotry and Life Saian			Boggining	N/1			
Department Offered	Applied Offen	mstry and Life Scien	Ce		Deggining				
Charge teacher	计委人王	去 語五 TOLL II Hide			grade				
name[Pomen_elnhabet	近 秀八,于		to, TENO Nyugo						
manie[rtoman alphabet									
Numbering	CHE MAS52	CHE MAS52225							
		220							
Objectives of class									
Biomaterials have been	n developed a	nd studied in terms	s of various app	lications including	biomedical, pha	armaceutical and			
environmental applicati	ons. This cour	se covers the funda	amentals and app	olications of bioma	terials and rela	ted experimental			
techniques.									
Contents of class									
This course deals with	all aspects of	biobased and biodeg	radable polymers	for biomedical, ph	armaceutical, a	nd environmental			
applications, and of inte	eractions in solu	utions between biom	olecules. The det	ailed course sched	lule is shown be	low. The detailed			
course schedule is show	vn below.								
Biobased and biodegrad	able polymers	(Hideto Tsuji):							
(1) introduction, synthe	sis, and struct	ures, (2) molding, cr	rystallization, and	physical propertie	s, (3) hydrolytic	degradation and			
biodegradation.									
-									
Biodevice and biosensir	g (Ryugo Tero)).							
(4) introduction of sur	face energy a	,. and interface enerm	(5) molecular	assembly in aque	ous solution ()	6) application to			
(+) Introduction of sur	ices and (7) se	neing and imaging te	chniques relating	to biomolecules ar	d biomaterials				
biomaterials and biodev			chiliques relating	to biomolecules al	la biomateriais.				
10 J		-				D			
If there will be any ch	anges regardir	ng Toyohashi Univer	sity of Technolo	gy Activity Restri	ctions Level fo	r Preventing the			
Spread of Corona virus,	the course co	ntent and evaluation	of achievement a	are subject to chan	ge.				
If there is any changes	about a class s	chedule, I will inform	you on Google C	lassroom or KYOM	U JOHO SYST	-M.			
Self Preparation and Re	eview								
If possible, read the re	ference book o	hapters which are s	hown below and	you can find them	in the universi	ty library (Hideto			
Tsuji).									
Read the appropriate c	hapter(s) of the	e reference book (#3	3) shown below. Y	'ou can access it i	n the university	network. (Ryugo			
Tero)									
Related subjects									
N/A									
Notes for textbook									
Printed materials will be	e distributed (H	ideto Tsuji).							
Printed materials will be	distributed as	necessary (Ryugo T	ero).		-	-			
Reference1	Book title	Degradation of Po	oly (Lactide)-Bas	ed Biodegradable	ISBN	1604565020			
		Materials							
	Author	Hideto Tsuji	Publisher	Nova Science	Publish year	2008			
		-		Pub Inc	-				
Reference2	Book title	Chapter 21 in	"Poly(lactic a	cid): Synthesis	ISBN	0470293667			
		Structures. Pr	roperties. Pro	ocessing. and					
		Applications"	,, , , , , , , , , , , , , , , ,	, u.iu					
	Author Hideto Tsuji Publisher Wilev Publish vear 2010								
Deferance?	Book title	Nanacajanasi Nana		d Nanobiology	I GDN	078-3-540-			
reterence3	DOOK TITLE INANOSCIENCE: INANODIOTECHNOIOGY AND INANODIOIOGY ISBN 9/8-3-540-								
	A					88833-4			
	Author	Patrick Boisseau	Publisher	Springer	Publish year	2009			
		& Marcel							

		Lahmani							
Notes for reference									
Reference book 3 (Ryugo Tero):									
http://link.springer.com/book/10.1007%2F978-3-642-28030-6									
Goals to be achieved									
To understand the fund	To understand the fundamentals and applications of biobased and biodegradable polymers (Hideto Tsuji).								
To understand the fundamentals and applications of interactions in aqueous solutions relating to biodevice and biosensing									
(Ryugo Tero).									
Evaluation of achievement									
Presentation (100%) reg	arding the biob	ased and biodegrada	ble polymers (Hid	eto Tsuji)					
Reporting assignment (1	100%) which will	l be given in each cla	ass (Ryugo Tero)						
[Evaluation basis] Stude	ents who atten	d all classes will be e	evaluated as follov	vs:					
S: Achieved all goals an	d obtained tota	l points of presentat	tion or reports, 90	or higher (out of 1	00 points).				
A: Achieved 80 % of goa	lls and obtained	total points of pres	entation or report	s, 80 or higher (ou	t of 100 points).				
B: Achieved 70 % of goa	ils and obtained	d total points of pres	entation or report	s, 70 or higher (ou	t of 100 points).				
C: Achieved 60 % of goa	als and obtained	d total points of pres	entation or report	ts, 60 or higher (ou	t of 100 points)				
Examination									
その他									
Other Dataile of commination									
Presentation (Hideto 1s	suji) Daman Tama)								
Reporting assignment (r	(yugo Tero)								
Doner Information	touii@ono tut or	in) phono: 6022 (Hi	data Tauji)						
Room (G= 402), e-mail (f	tero@tutin) nh	ope: 6017 (Duuro Te							
Reference LIRI	tero@tat.jp/, pri								
N/A									
Office hours									
Immediately after the cl	ass (Hideto Ts	uii)							
After the class, or as ne	eeded in my off	ice (Ryugo Tero)							
Relations to attainment	objectives of	learning and education	on						
	-	-							
(の) 古由た知識な幼会の	めにチャズキス	宝曜书,创选书							
(し) 同度な知識を祝日中 広田化学・生会工学な	りに石田できる	天成月間迫力	知識た攸倶 ス	わこた理題級法の	ために紘へ的に	・チ田できる実践			
心用化子 エーエーのの	いけている	「「「」」の「」」では、	和戚と哆府し、し	イレジュネ風所入り		- 石田 しての天成			
い。別近り能力ですに、									
(C) Practical and creati	ve skills to utili	ze advanced knowle	dge in an integrate	ed manner					
Have advanced knowle	Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and								
creative skills to utilizesuch knowledge for problem solving in an integrated manner									
美務経験	実務経験								

(M44630360)Advanced Reactive Plasma[Advanced Reactive Plasma]

Subject name[English]	Advanced Reactiv	ve Plasma[Adv	anced	Reactive Plasma]			
Schedule number	M44630360	Subject area	1	Advanced	Required	or	Elective
		-		Applied	elective		
				Chemistry and			
				Life Science			
Time of starting a course	Spring2 term	Day of week.period	the	Mon.4~4	Credit(s)		1
Faculty	Graduate Program	n for Master's	Degre	e	Subject grade	9	1~
Department Offered	Applied Chemistry	v and Life Scie	nce		Beggining	-	M1
					grade		
Charge teacher name[Roman	髙島 和則 TAKA	SHIMA Kazuno	ori		-		
alphabet mark]							
Numbering	CHE_MAS52225						
Objectives of class							
近年プラズマを用いたガス状活体	⊵物質の浄化に代え	まされる大気圧	プララ	ズマを用いた環境対	・・ 策技術の研究	盟登	が感んになって
いている。この分野においては放	雷現象に関する理	解は欠くべから	ざる	-つの基礎的事項で	である、本講義	は放き	雷の基礎過程を
解説する。		M+1000CC 10 2		シの空院的子供			
To understand and fundamentals	of rac discharge						
Contents of class	or gas uiscriarge						
	(オンデマンド)						
「週日 インドロメリンヨン	(オンデマンド)						
	(オンノマント)						
3週日 还没万印岗奴 (オノナマノト) #街空 (ナンギマ	* . *)					
	生餌矢 (オンティ	(ノト)	ヨノショア、				
	、電離2(元電離・熟	や電離・電極の弱	影響)	(オンティント)			
6週日 電子の泪滅(払散、	用結合、何看、両相	國性批散) ()	オンフ	-マント)		9 <i>I</i> IL I	° ` ` o +
	電、タワンセント放電	電、二次電子加	【田と	付着の影響、タワン	セントの火化多	余件と	こハッシェンの法
則)(オンテマント)							
本学の新型コロナウィルス感染拡 があります。	大防止のための活	5動基準の変更	「に伴	い、授業内容および	「成績の評価法	に変	更が生じる場合
	Ň						
week I: Introduction (on-dem	nand)						
week 2: Elements of kinetic theo	ory of gases				(1)
week 3: Elements of kinetic theo	bry of gases (Boltzr	mann-iviaxwell s	s mole	ecular velocity distri	ibution) (on-	-dema	and)
week 4: Elements of kinetic theo	bry of gases (mean	free path, elas	tic co	llision) (on-dema	nd)		(
week 5: Ionization 1 (ionization	n by collision), Ion	ization 2 (phot	to ior	ization, thermal ior	lization, electro	ode e	effect) (on-
demand)					Ň		
week 6: Deionization (diffusion, r	recombination, atta	chment, ambip	olar d	iffusion) (on-dem	iand)		
week /: Breakdown (gas dischar	ge, Iownsend disch	narge, Effect of	seco	ndary emission and	attachmen, Io	wnse	end criterion and
Paschen law) (on-demand)							
The course content and evaluation	on of achievement a	are subject to	chang	e due to change in	TUT Activity F	Restri	ictions Level for
Preventing the Spread of COVID-	-19.						
Self Preparation and Review							
各回の講義内容に関すして予習	るよび復習を行うこ	とが望ましい。					
標準的予習•復習時間: 授業90分	}につき予習90分-	+復習90分					
90 minutes of preparation and 90	minutes of review a	are generally re	equire	d for each class of	90 minutes.		
Related subjects							
Notes for textbook							
必要に応じて資料を配布							
Handout will be given as needed							
Notes for reference							

Goals to be achieved 放電の基礎過程を理解する

To learn fundamentals of gas discharge

Evaluation of achievement

課題レポートにより評価する。 評価基準:原則的に下記のように成績を評価する。 S:達成目標をすべて達成しており,かつレポートの点数(100 点満点)が 90 点以上 A:達成目標の 80%を達成しており,かつレポートの点数(100 点満点)が 80 点以上 B:達成目標の 70%を達成しており,かつレポートの点数(100 点満点)が 70 点以上 C:達成目標の 60%を達成しており,かつレポートの点数(100 点満点)が 60 点以上 Students who attend all classes will be evaluated as follows: S: Achieved all the goals and obtained points of reports, 90 or higher (out of 100 points). A: Achieved 80% of goals and obtained points of reports, 80 or higher (out of 100 points). B: Achieved 70% of goals and obtained points of reports, 70 or higher (out of 100 points). C: Achieved 60% of goals and obtained points of reports, 60 or higher (out of 100 points).

By Report

Details of examination

Other information

高島和則 - 居室: G-504、内線番号: 6919、メールアドレス: takashima@chem.tut.ac.jp

Dr. Kazunori Takashima Office: G-504 (phone 6919) E-mail: takashima@chem.tut.ac.jp

Reference URL 記述なし

Office hours

随時応対可 ただし、事前にメールにて連絡すること。

Make an appointment by e-mail.

Relations to attainment objectives of learning and education

(C)高度な知識を統合的に活用できる実践力・創造力応用化学・生命工学およびその関連分野に関する高度な知識を修得し、それらを課題解決のために統合的に活用できる実践的・創造的能力を身につけている。
>>(C1)応用化学・生命工学およびその関連分野の理論・応用知識を自発的に獲得し、それらを統合的に活用できる能力を身につけている。
>>(C2)応用化学・生命工学およびその関連分野の広範囲の知識の連携により、研究開発に対する方法論を体得して、研究開発の計画を立案および実践し、課題解決のための新たな技術を創造できる能力を身につけている。
(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilizesuch knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and developmentand put them into practice; and to create new technologies to solve problems

Key words

(M44630440)Advanced Molecular Design Chemistry 2[Advanced Molecular Design Chemistry 2]

Subject name[English]	Advanced Molecular Design Chemistry 2[Advanced Molecular Design Chemistry 2]							
Schedule number	M44630440	Subiec	t are	8	Advanced	Required	or	Elective
				Applied	elective	•••		
					Chemistry and			
					Life Science			
Time of starting a course	Spring term	Day week p	of	the	Intensive	Credit(s)		2
Faculty	Graduate Program	n for Mas	ster's	Degre	e e	Subject gra	de	1~
Department Offered	Applied Chemistr	v and Life	e Sci	ence		Beggining	uu	M1
		,		-		grade		
Charge teacher name[Roman	S4糸教務委員4	kei kyom	u Iin-	-S				
	CHE MAS52225							
Objectives of alego	0112_11/ (002220							
This course will provide the stude design chemistry.	ents with the oppor	tunity to	stud	y on t	he selected subject	in the realm	of ad	vanced molecular
Contents of class								
The classes will be given by his/	her supervisor. The	e student	ts wil	l be re	equired to read tex	tbooks and pa	apers	but the type and
contents of this course depend o	n his/her superviso	or.						
Weeks 1 through 15: Topics on ac	lvanced molecular (design ch	nemis	try (fa	ce to face)			
The course content and evaluation	on of achievement a	are subie	ct to	chang	ge due to change in	TUT Activitv	Rest	rictions Level for
Preventing the Spread of COVID-	-19.	-		-		-		
Self Preparation and Review								
Preparation (90 minutes) and revi	ew (90 minutes) ar	e general	ly red	quired	for each class of 9	0 minutes.		
Related subjects		0						
Advanced Molecular Design Chem	nistry 1							
Notes for textbook								
Supervisor will recommend textbo	ooks and papers to	students						
Notes for reference								
Goals to be achieved								
To acquire advanced knowledge o	n advanced molecu	ular desig	n che	emistry	/.			
To be able to report and discuss	the contents of tex	tbooks a	nd pa	apers ł	ne∕she has read.			
Evolution of achievement								
The evaluation is based on the as	area of reports pr	ocontatio		nd ava	mination			
His /bor supervisor evaluates the	ores of reports, pro	esentatio	ns, a	nu exa	inination.			
S: 90 or higher (out of 100 points))							
A: 80 or higher (out of 100 points))							
B: 70 or higher (out of 100 points))							
C: 60 or higher (out of 100 points)							
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
Supervisor								
Reference URL								
http://chem.tut.ac.jp/en/								
Office hours								
Students are encouraged visiting	by appointment.							
Relations to attainment objective	Relations to attainment objectives of learning and education							

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Key words

Applied chemistry, Life science, Materials science and engineering

(M44630460)Advanced Molecular Functional Chemistry 2[Advanced Molecular Functional Chemistry 2]

Subject name[English]	Advanced Molecular Functional Chemistry 2[Advanced Molecular Functional Chemistry 2]									
Schedule number	M44630460	Subject a	Required or	Flective						
	Applied				elective	2.000.00				
				Chamiatry and	0.000110					
				Life Science						
Time of starting a source	Spring torm	Day of	the	Life Science	Credit(a)	2				
Time of starting a course	Spring term	Day of	od ad	Intensive	Great(s)	2				
P Hu .	Our durate Duranne	week,peri	Outlinet and	1						
Faculty	Graduate Program	m for Maste	ee	Subject grade	~ ∼					
Department Offered	Applied Chemistr	ry and Life S	Beggining	M1						
A 1 P	。 , 天北 羽 千日 ,		_		grade					
Charge teacher name_Roman	S4糸教務委員4	ikei kyomu li	n-S							
alphabet mark										
Numbering	CHE_MAS52225									
Objectives of class										
This course will provide the stude	ents with the oppor	rtunity to st	udy on t	he selected subject	in the realm of ad	vanced molecular				
functional chemistry.										
Contents of class										
The classes will be given by his/	her supervisor. Th	e students v	will be r	equired to read text	books and papers	but the type and				
contents of this course depend of	n his/her superviso	or								
		51.								
Weeks 1 through 15: Topics on ac	lvanced molecular	functional cl	nemistry	(face to face)						
The course content and evaluation	on of achievement	are subject	to chan	ge due to change in	TUT Activity Rest	trictions Level for				
Preventing the Spread of COVID-	-19.									
Self Preparation and Review										
Preparation (90 minutes) and revi	ew (90 minutes) ar	e generally i	required	for each class of 9	0 minutes					
Related subjects	<u></u>	e generally i								
Advanced Melecular Eurotional C	homiotry 1									
Advanced Molecular Functional C	nemistry i									
Supervisor will recommend textbooks and papers to students.										
Notes for reference										
Goals to be achieved										
To acquire advanced knowledge o	on advanced molec	ular function	al chem	istry.						
To be able to report and discuss	the contents of te	xtbooks and	papers	he∕she has read.						
Evaluation of achievement										
	c ,									
The evaluation is based on the so	ores of reports, pr	esentations,	and exa	amination.						
His/her supervisor evaluates the	scores.									
S: 90 or higher (out of 100 points)),									
A: 80 or higher (out of 100 points),									
B: /0 or higher (out of 100 points),									
C: 60 or higher (out of 100 points)									
Examination										
試験期間中には何も行わない										
None during exam period										
Details of examination										
Other information										
Supervisor										
Reference IDI										
http://ohom tut on in / /										
nttp://cnem.tut.ac.jp/en/										
Students are encouraged visiting	by appointment.									
Relations to attainment objective	s of learning and e	ducation								

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

Have advanced knowledge about applied chemistry and life science as well as related fields; and have the practical and creative skills to utilize such knowledge for problem solving in an integrated manner

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(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Key words

Applied chemistry, Life science, Materials science and engineering

(M44630480)Advanced Molecular Biological Chemistry 2[Advanced Molecular Biological Chemistry 2]

Subject name[English]	Advanced Molecular Biological Chemistry 2[Advanced Molecular Biological Chemistry 2]						Chemistry 2]	
Schedule number	M44630480	Subje	ct are	a	Advanced	Required or	Elective	
		Applied		elective				
					Chemistry and			
					Life Science			
Time of starting a course	Spring term	Day	of	the	Intensive	Credit(s)	2	
		week,	period					
Faculty	Graduate Program	n for Ma	ster's	Degre	e	Subject grade	1~	
Department Offered	Applied Chemistry	y and Lif	fe Scie	ence		Beggining	M1	
Ohanna haadaan mara Damaa	04 云			<u> </u>		grade		
Charge teacher name_Roman	34术软伤安良 4	kei kyön	iu in-	3				
	CHE MAS52225							
This course will provide the stude	ents with the oppor	tunity to	stud	y on t	ne selected subject	in the realm of ad	vanced molecular	
	· ·							
The classes will be given by his/	her supervisor. The	e studen	ts will	be re	equired to read text	books and papers	but the type and	
contents of this course depend of	n his/her superviso	or.						
Weeks 1 through 15: Topics on ac	lvanced molecular l	piologica	l chen	nistry	(face to face)			
The course content and evaluation	on of achievement :	ara subie	act to	chang	re due to change in	THT Activity Rest	rictions Level for	
Preventing the Spread of COVID-		are subje	501 10	Chang	e due to change in	TOT Activity Nes		
Self Preparation and Paview	13.							
Branaration (00 minutes) and ravi	our (00 minutoo) or		llyroo	wird	for each along of Q	minutoo		
Preparation (90 minutes) and revi	ew (30 minutes) are	e genera	ily rec	luirea	Tor each class of 90	o minutes.		
Advensed Melseyler Biological Ch	andator 1							
Notes for textback	iemistry i							
Superviser will recommend touth	also and nanava ta		-					
Supervisor will recommend textbo	oks and papers to	students	5.					
A I I I I I I								
Goals to be achieved								
To acquire advanced knowledge o	on advanced molecu	lar biolo	gical o	chemi	stry.			
To be able to report and discuss	the contents of tex	tbooks a	and pa	apers I	ne/she has read.			
Evaluation of achievement								
The evaluation is based on the so	ores of reports, pre	esentatio	ons, ar	nd exa	mination.			
His/her supervisor evaluates the	scores.							
S: 90 or higher (out of 100 points)),							
A: 80 or higher (out of 100 points)),							
B: 70 or higher (out of 100 points)),							
C: 60 or higher (out of 100 points))							
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
Supervisor								
Reference URL								
http://chem.tut.ac.jp/en/								
Office hours								
Students are encouraged visiting by appointment.								
Relations to attainment objective	s of learning and e	ducation	1					
-								

(C) Practical and creative skills to utilize advanced knowledge in an integrated manner

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(C1) Have the skills to voluntarily acquire theories and applied knowledge about applied chemistry and life science as well as related fields; and to utilize such knowledge in an integrated manner

(C2) Have the skills to learn, by experience, methodologies for research and development through integrating extensive knowledge about applied chemistry and life science as well as related fields; to make plans for research and development and put them into practice; and to create new technologies to solve problems

(E) Inquisitive outlook and skills for continuous learning in response to state-of-the-art technology and changes in the social environment

Have the skills to voluntarily make plans and learn throughout one's life in response to changes in society, environment and technology

Key words

Applied chemistry, Life science, Materials science and engineering

(M45610010)Seminar on Architecture and Civil Engineering I[Seminar on Architecture and Civil Engineering I]

Subject name[English]	Seminar on Architecture and Civil Engineering IlSeminar on Architecture and Civil							
	Engineering I			1				
Schedule number	M45610010	Subject area	Advanced	Required or	Required			
			Architecture	elective				
			and Civil					
			Engineering					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	3			
_		week,period						
Faculty	Graduate Progra	m for Master's Degre	e	Subject grade	1~			
Department Offered	Architecture and	Civil Engineering		Beggining	M1			
				grade				
Charge teacher name[Roman	S5系教務委員	5kei kvomu lin-S		8.000				
alphabet mark]								
Numbering	AI(0_101A331013							
Objectives of class								
All the students are required to	attend all the sen	ninars, which is arrar	nged by the laborate	ory supervisor for	the special study			
subjects related to the current re	esearch activity of	the laboratory. The	scheduled program o	of the seminars is a	announced by the			
supervisor at the guidance of the	seminar.							
Contents of class								
Salf Properation and Poview								
Sen Preparation and Review								
Related subjects								
Notes for textbook								
Notes for textbook								
Notes for reference								
Goals to be achieved								
Evaluation of achievement								
Report								
Examination								
その他								
Other								
Details of examination								
Other Information								
Reference URL								
Office hours								
Office flours								
Relations to attainment objectives of learning and education								
1								
Key worde								
Noy Worus								

(M45610020)Seminar on Architecture and Civil Engineering II[Seminar on Architecture and Civil Engineering II]

Outlant man [Fault 1]			ч г · · · тГо	· • • • •	-			
Subject name[English]	Seminar on Architecture and Civil Engineering IILSeminar on Architecture and Civil							
	Engineering II		[[1			
Schedule number	M45610020	Subject area	Advanced	Required or	Required			
			Architecture	elective				
			and Civil					
			Engineering					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	3			
		week,period						
Faculty	Graduate Progra	am for Master's Degre	e	Subject grade	2~			
Department Offered	Architecture an	d Civil Engineering		Beggining	M2			
		5 5		grade				
Charge teacher name[Roman	S5系数務委員	5kei kvomu lin-S		8				
alphabet mark]	CONTRACT SE							
Numbering								
Objectives of class								
All the students are required to	attend all the ser	ninars, which is arrar	nged by the laborate	ory supervisor for	the special study			
subjects related to the current re	esearch activity of	f the laboratory. The	scheduled program	of the seminars is a	announced by the			
supervisor at the guidance of the	seminar.							
Contents of class								
Salf Dran cratics, and Daview								
Sen Preparation and Review								
Related subjects								
-								
Notes for touth ask								
Notes for textbook								
Notes for reference								
Ocole to be achieved								
Goals to be achieved								
Evaluation of achievement								
Report								
Examination								
その他								
Other								
Details of examination								
Other information								
Deference LIDI								
Office hours								
Deletions to attainment abientions of learning and advection								
relations to attainment objective	s or learning and	ourcation						
Key words								

(M45610030)Thesis Research on Architecture and Civil Engineering[Thesis Research on Architecture and Civil Engineering]

Subject name[English]								
	Civil Engineering]							
Sebadula number	MAS610020	Subject eres	Advanced	Permined on	Doguirod			
Scriedule number	10143010030	Subject area	Auvanceu	cleative	Required			
			Architecture	01001140				
			En ain e e ain a					
Time of starting a server	21/20112	Day of the	Intervive		6			
Time of starting a course	ZTears	Day of the	Great(s)	0				
Feeulty.	Graduata Pragra	m for Mostor's Dorr	Subject mede	1~				
Paculty Department Offered	Arabitaatura an	A Civil Engineering	56	Subject grade	M1 M2			
Department Onered	Architecture and	u Givii Engineering		Deggining				
Charge teacher name[Paman	05玄劫淼禾吕	5玄久数吕 5kai kua	mu lin-S. 5kai kakuk	grade				
onarge teacher name_roman	うつ不我仂女員, O木合我員 Oker Kyomu Immo, Oker Kakukyouin							
Numbering	ARC MAS61015							
			4					
This thesis research on architect	ture and civil engi	neering is designated	to deepen the know	viedge and enhance	e the skills of the			
Students in their research fields 1	nrougn the self-o	rientea endeavour wi	in the instruction of	nis/ner supervisoi	r(S).			
	£ 46 - 46 - 1	demonstration of the			and all all and the set			
and of the course and the contents of	on the thesis vary	uepending on the la	poratory. All studer	us must present the	the star course The			
end of the course and take a fir	al examination on	the thesis, as a req	uirement for the gr	aduation of the ma	ister course. The			
study for the thesis is planned an	id conducted unde	er the guidance of the	e supervisor(s).					
Self Preparation and Review								
								
IBD by the laboratory								
Notes for textbook								
TBD by the laboratory								
Notes for reference								
Goals to be achieved								
Evaluation of achievement								
This credit is assigned for all the	process for the p	reparation and prese	ntation of the thesis					
Examination								
その他								
Other								
Details of examination								
Other information								
Refer to administration office								
Reference LIRI								
Pafer to the LIPL of each laborat	00/							
	UI y							
Defer to administration office								
Relations to attainment objective	e of learning and	education						
	s of learning and	ouucauon						
Kev words								

(M45610030)Thesis Research on Architecture and Civil Engineering[Thesis Research on Architecture and Civil Engineering]

Subject name[English]	Thesis Research	on Architecture and	Civil Engineering[T	hesis Research on	Architecture and		
	Civil Engineering						
Schedule number	M45610030	Subject area	Advanced Architecture and Civil Engineering	Required or elective	Required		
Time of starting a course	2Years	Day of the week.period	Intensive	Credit(s)	6		
Faculty	Graduate Progra	m for Master's Degre	ee	Subject grade	1~1		
Department Offered	Architecture and	d Civil Engineering		Beggining grade	M1, M2		
Charge teacher name[Roman alphabet mark]	S5系教務委員	5kei kyomu Iin-S					
Numbering	ARC_MAS61015						
Objectives of class							
This thesis research on architect	ure and civil engin	neering is designated	to deepen the know	wledge and enhanc	e the skills of the		
students in their research fields t	hrough the self-o	riented endeavour wi	th the instruction of	f his/her superviso	r(s).		
Contents of class							
The subjects and the contents o	of the thesis vary	depending on the la	boratory. All studer	its must present t	neir thesis at the		
end of the course and take a fin	al examination on	the thesis, as a req	uirement for the gr	aduation of the ma	aster course. The		
study for the thesis is planned an	id conducted unde	er the guidance of the	e supervisor(s).				
Self Preparation and Review							
Related subjects							
TBD by the laboratory							
Notes for textbook							
IBD by the laboratory							
Goals to be achieved							
Evaluation of achievement							
This credit is assigned for all the	process for the p	reparation and presei	ntation of the thesis	5.			
Examination その他							
て の 1世 Other							
Details of examination							
Other information							
Refer to administration office.							
Reference URL							
Refer to the URL of each laborat	ory						
Office hours							
Refer to administration office.							
Relations to attainment objectives of learning and education							
Key words							

(M4561003T)Thesis Research on Architecture and Civil Engineering[Thesis Research on Architecture and Civil Engineering]

Subject name[English]	Thesis Research on Architecture and Civil Engineering[Thesis Research on Architecture and							
	Civil Engineering	g]						
Schedule number	M4561003T	Subject area	Advanced	Required or	Required			
			Architecture	elective				
			and Civil					
			Engineering					
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6			
	0	week,period		<u></u>				
Faculty	Graduate Progr	am for Master's Degre	e	Subject grade	2~2			
Department Offered	Architecture an	d Givil Engineering		Beggining grade	M2			
Charge teacher name[Roman	S5系教務委員	5kei kyomu Iin-S		-				
alphabet mark]		-						
Numbering	ARC_MAS61015	5						
Objectives of class	Į.							
This thesis research on architec	ture and civil engi	neering is designated	to deepen the know	vledge and enhanc	e the skills of the			
students in their research fields	through the self-o	priented endeavour wi	th the instruction of	his/her superviso	r(s)			
Contents of class					(0).			
The subjects and the contents of	of the thesis vary	depending on the la	horatory All studer	ts must present t	heir thesis at the			
end of the course and take a fir	al examination or	the thesis as a rec	wirement for the gr	aduation of the ma	aster course. The			
study for the thesis is planned ar	nd conducted und	er the guidance of the	supervisor(s)					
Self Preparation and Review								
Related subjects								
Notes for textbook								
Notes for reference								
Goals to be achieved								
Evaluation of achievement								
This credit is assigned for all the	process for the p	preparation and prese	ntation of the thesis					
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
Refer to administration office.								
Reference URL								
Refer to the URL of each laborat	ory							
Office hours								
Refer to administration office.	Refer to administration office.							
Relations to attainment objective	s of learning and	education						
Key words								

(M45610040)Seminar on Architecture and Civil Engineering[Seminar on Architecture and Civil Engineering]

Subject name[English]	Seminar on Ai	rchitecture and Ci	vil Engineering[Ser	nınar on Archite	cture and Civil
	Engineering	I	1		I
Schedule number	M45610040	Subject area	Advanced	Required or	Required
			Architecture	elective	
			and Civil		
			Engineering		
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6
_		week,period			
Faculty	Graduate Progra	m for Master's Degre	ee	Subject grade	2~2
Department Offered	Architecture and	Civil Engineering		Beggining	M2
				grade	
Charge teacher name[Paman	05 玄劫 淼 禾 吕 。	5kai kuomu Iin-S		grado	
olababat mark]	30宋秋初安貞、				
Numbering	ARC_MASSIUIS				
Objectives of class					
All the students are required to	attend all the sem	ninars, which is arrar	nged by the laborate	ory supervisor for	the special study
subjects related to the current re	esearch activity of	the laboratory. The	scheduled program (of the seminars is a	announced by the
supervisor at the guidance of the	seminar.				
Contents of class					
In each seminar, students purs	sue several resea	rch topics and/or	undertake projects	collectively and	solelv under the
instruction of the faculty member	rs of the departme	nt and/or those of o	ther departments.	,	,
Self Preparation and Review					
Related subjects					
Notes for textbook					
NOLES IN LEXIBOOK					
Notes for reference					
Goals to be achieved					
Evaluation of achievement					
Report					
Examination					
レポートで実施					
By Report					
Details of examination					
Other information					
Reference URL					
055					
Office hours					
Relations to attainment objective	s of learning and ϵ	education			
1					
Key words					

(M45630130)Advanced Study on Housing System and Housing Policy[Advanced Study on Housing System and Housing Policy]

Subject name[English]	Advanced Study on Housing System and Housing Policy[Advanced Study on Housing							
Subject name[English]	System and Housing Policy]				in and nousing F	oncy[Advanced Study on Housing		
Cabadala anashara	System and Housing Policy		A share a sh	De audue de la cu	Election .			
Schedule number	M45630130	30 Subject area		a	Advanced	Required or	Elective	
					Architecture	elective		
					and Civil			
		_			Engineering		-	
Time of starting a course	Spring term	Day	of	the	Tue.2~2	Credit(s)	2	
		week,po	eriod					
Faculty	Graduate Progran	n for Mas	ter's	Degre	e	Subject grade	1~	
Department Offered	Architecture and Civil Engineering				Beggining	M1		
					grade			
Charge teacher name[Roman	松島 史朗 MATSUSHIMA Shiro							
alphabet mark]								
Numbering	ARC_MAS53025							
Objectives of class								
国際世界では気候の変動、地震	、内戦、貧困など多	様な要因	で人	、々が	離民、亡命者、被災	者として国境を越	え、都市部へ流入	
し、社会問題化しているのは周知	の事実であろう。そ	のような	状況	の中で	、住宅供給の在りた	が問われている。		
学生は、各国におけるこうした状	況下での住宅供給	の状況に	つい	て事例	副研究を行い、最終的	的にはケース教材	として発展刺させ	
ることを目標とする。				- 1 0				
To understand emerging archite	ecture of humanit	v such a	as p	ost-di	saster temporary h	ousing refugee	camp, and illegal	
residence With increasing number	er of population mo	ving into	the	urhan	area from suburbs	there emerge ris	ks with which we	
have to cope, especially supply of	f housing and relate	d facility	has	to he	taken into account			
For the final projet students are	expected to con	luct rese	arch		rite a case study or	n such risks of th	peir countries and	
evamine necessary counter meas		1000 1030		1 00 111	ite a base study of			
Contents of class	measures.							
Inis course takes several topics about the issues stated above. I we classes are allocated to each topic in principle; in the								
first class a lecture is given by	rst class a lecture is given by the instructor and in the second class, the presentation is given by the student who is							
assigned to each topic.	юріс.							
It may adopt case method with v	t may adopt case method with which students are expected to read cases on various topics regarding emerging risks related							
to architectural								
and housing planning, design, an	g planning, design, and urban development. Students read cases prior to the class and, at the class, they will							
exchange their ideas								
face to face in order to develop	order to develop their original idas to knowledge. It is also expected to develop skills of debating. Instructor will							
provide								
appropriate instruction in timely r	nanner for the clas	s discussi	ion a	long w	ith giving lecture at	the class.		
1. Introduction								
2/3. Architecture after 3.11								
4/5. Lecture on Architectural and	5. Lecture on Architectural and Housing Development of the World							
6/7. Revitalising the City and Em	powering. Communi	ty Tie by	the	Comm	unity (Re) Developm	ient in Toyokawa	Inari Shrine	
Mid-term paper due: proposal of	the final project							
8/9. Yebisu Garden Place								
10. Final Project Interim Presenta	tion and collective	review						
11/12. Rainbow Town Tokyo Wat	erfront Developmer	nt						
13. Independent Desk Crit								
14 Final presentation by student	S.							
For the final project, students wi	ll write their own c	ases base	ed or	n their	research and give	presentation at th	ne last class. Final	
project may be either independen	t work or group pro	oject.						
Because this is a small class and	use this is a small class and students have different backgrounds and interests. the contents of the class and schedule					lass and schedule		
are subject to change according t	o her/his discipline	s.	-					
This course takes several topics	about the issues	stated ab	oove.	Two	classes are allocate	d to each topic i	n principle; in the	
first class a lecture is given by	the instructor an	d in the	sec	ond cl	ass, the presentation	on is given by th	e student who is	
assigned to each topic.						- •		
It may adopt case method with v	which students are	expected	l to r	read c	ases on various topi	ics regarding eme	rging risks related	
to architectural						5 5		
and housing planning, design an	d urban developm	ent. Stud	lents	read	cases prior to the	class and at th	e class. they will	
exchange their ideas							, , ,	
face to face in order to develop t	heir original idas to	knowled	lge I	t is ale	so expected to deve	lop skills of debat	ing Instructor will	
		, mowieu	.50. I	c 15 alt		op skins of debat	ang. Instructor will	

provide

appropriate instruction in timely manner for the class discussion along with giving lecture at the class.

1. Introduction

 $2/3.\ Architecture$ after 3.11

 $4/5. \ Lecture \ on \ Architectural \ and \ Housing \ Development \ of \ the \ World$

6/7. Revitalising the City and Empowering. Community Tie by the Community (Re) Development in Toyokawa Inari Shrine Mid-term paper due: proposal of the final project

8/9. Yebisu Garden Place

8/9. Yebisu Garden Place

10. Final Project Interim Presentation and collective review

11/12. Rainbow Town Tokyo Waterfront Development

13. Independent Desk Crit

14 Final presentation by students.

For the final project, students will write their own cases based on their research and give presentation at the last class. Final project may be either independent work or group project.

Because this is a small class and students have different backgrounds and interests, the contents of the class and schedule are subject to change according to her/his disciplines.

Self Preparation and Review

教材は簡単にアクセスできるように Dreamcampus にアップし、その場で意見交換などもできるようセットしてあるので。効果的に 活用されたい。こうした意見交換や教員の指導を受けながら事例研究をまとめていく。

Read a case and prepare for the answers to each question on the case.

Develop your own ideas in order to exchange them w/ your class mates to have more diverse views. Reading materials are to be uploaded on the Dreamcampus where you can have an easy acceccess to the material, may upload your opinion, and exchange ideasa with other students.

From the review of your project, you may revise and develop your argument for the future. Reflecting yourself by listening to others is the most important aspect to become a good practitioner.

Related subjects

Architectural/Civil Engineering practice experience preferred but not required.

Architectural/Civil Engineering practice experience preferred but not required.

Notes for textbook

Matsushima Shiro, Identity COmmunity Resiliency, Responsibilities of Society, University, and Architecture. Harvard Univerity Graduate School of Design, report on housing policies and their impacts on human life. Cases shown above. Cases are subject to change.

(Reference)

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Matsushima Shiro, Identity COmmunity Resiliency,Responsibilities of Society, University, and Architecture. Harvard Univerity Graduate School of Design, report on housing policies and their impacts on human life. Cases shown above. Cases are subject to change.

(Reference)

TBA

Notes for reference

Because this field is getting important more than ever before, there are some new books available and students are encouraged to search for the up-dated information probably via internet.

Because this field is getting important more than ever before, there are some new books available and students are encouraged to search for the up-dated information probably via internet.

Goals to be achieved

To understand the needs or structure for humanity that involves various issues including design, procurement, and distribution systems of architecture from international point of view and from local standpoint.

To develop your own ideas and your ability of discussion based on the comparative research of your country and Japan about the problems discussed here.

To understand the needs or structure for humanity that involves various issues including design, procurement, and distribution systems of architecture from international point of view and from local standpoint.

To develop your own ideas and your ability of discussion based on the comparative research of your country and Japan about

the problems discussed here.
Evaluation of achievement
Class participation (30%), final project of case writing (40%) , presentation by the students (30%), and contributiron to make the
booklet that features the final projects (10%)
Class participation (30%), final project of case writing (40%) , presentation by the students (30%), and contributiron to make the
booklet that features the final projects (10%)
Examination
その他
Other
Details of examination
Other information
D-707, Phone: 44-6835, Email: shirom@ace.tut.ac.jp
D-707, Phone: 44-6835, Email: shirom@ace.tut.ac.jp
Reference URL
http://mlab.ace.tut.ac.jp/
http://mlab.ace.tut.ac.jp/
Office hours
Every Tuesday 12:30 to 14:30 on sign-up basis
or by appointment via email
Every Tuesday 12:30 to 14:30 on sign-up basis
or by appointment via email
Relations to attainment objectives of learning and education
Key words
collective housing, community development, self build, camps, design practice

(M45630200)Advanced Structural System Planning and Design II[Advanced Structural System Planning and Design II]

Subject name[English]	Advanced Struc	tural System Plannir	ng and Design II[Ad	vanced Structural	System Planning		
Schedule number	and Design II M45630200	Subject area	Advanced Architecture and Civil	Required or elective	Elective		
Time of starting a course	Spring term	Day of the	Intensive	Credit(s)	2		
Faculty	Graduate Progra	m for Master's Degre	e	Subject grade	1~		
Department Offered	Architecture and	Architecture and Civil Engineering Beggining rade					
Charge teacher name[Roman alphabet mark]	S5系教務委員 5kei kyomu Iin−S						
Numbering	ARC_MAS52025						
Objectives of class	I						
It depends on the laboratory. T	he resistered stu	dents are required	to attend all the s	eminars, which is	arranged by the		
laboratory supervisor for the spe	cial study subject	s related to the cur	rent research activi	ty of the laborator	y. The scheduled		
program of the seminars is annou	inced by the super	visor at the guidance	e of the seminar.				
Contents of class							
In each seminar, students purs	sue several resea	rch topics and/or	undertake projects	collectively and	solely under the		
instruction of the faculty member	rs of the departme	nt and/or those of o	ther departments.				
Self Preparation and Review							
Review each lecture and prepare	for the next class	with reference to th	e textbook.				
Related subjects							
N/A							
Papers(resume)will be distributed	utea.						
Goals to be achieved							
Evaluation of achievement							
This credit is assigned for all the	e process for the	oral presentation or	report. But fundam	entally the estima	tion of this class		
would depends on the supervisor	of each laboratory						
Examination							
レポートで実施							
By Report							
Details of examination							
Report							
Other information							
N/A							
N/A							
Omce nours							
Denore/ after the class	e of learning and	aducation					
	o vi ioarning and i	Juudauvii					
Key words							

(M45630220)Advanced Environmental System Planning and Design II[Advanced Environmental System Planning and Design II]

Subject name[English]	Advanced Environmental System Planning and Design II[Advanced Environmental System					
	Planning and Des	ign II]	1			
Schedule number	M45630220	Subject area	Advanced	Required or	Elective	
			Architecture	elective		
			and Givil			
Time of starting a course	Spring term	Day of the	Intensive	Credit(s)	2	
	oping com	week.period	Intensive	Of Ources	2	
Faculty	Graduate Program	n for Master's Degr	e	Subject grade	1~	
Department Offered	Architecture and	Architecture and Civil Engineering		Beggining	M1	
				grade		
Charge teacher name[Roman	S5糸教務委員 5kei kyomu lin-S					
alphabet mark	APC MAS54025					
	AKU_MAS04U20					
Ubjectives of class	The maintained shadows are maintained as set on 1 and					
laboratory supervisor for the spe	ne resistered stud	s related to the cur	rent research activit	ty of the laborator	The scheduled	
program of the seminars is annou	inced by the superv	visor at the guidance	e of the seminar.		y. The solication	
Contents of class	, , , , , , , , , , , , , , , , , , ,	5				
In each seminar, students purs	sue several resear	rch topics and/or	undertake projects	collectively and	solely under the	
instruction of the faculty member	rs of the departmer	nt and/or those of o	ther departments.			
Self Preparation and Review						
Review each lecture and prepare	for the next class	with reference to th	e textbook.			
Related subjects						
N/A						
N/A						
N/A						
Goals to be achieved						
Inderstand the contents of the l	atest research nan	ers and debate with	supervisor			
Create a research paper (includin	ing English)					
Evaluation of achievement						
This credit is assigned for all the	This credit is assigned for all the process for the oral presentation or report. But fundamentally the estimation of this class					
would depends on the supervisor	would depends on the supervisor of each laboratory.					
Examination						
レポートで実施						
By Report						
Details of examination						
Report Other information						
N/A						
Reference URL						
N/A						
Office hours						
N/A						
Relations to attainment objective	s of learning and e	ducation				
Kev words						

(M45630240)Advanced Regional System Planning and Design II[Advanced Regional System Planning and Design II]

Subject nemo[Endich]	Advanced Desi	mal Svetam Dianning		and Designal Syst	hana Dianning and	
Subject name[English]		onal System Planning	and Design IILAdva	nced Regional Syst	tem Planning and	
	Design II				E 1	
Schedule number	M45630240	Subject area	Advanced	Required or	Elective	
			Architecture	elective		
			and Civil			
			Engineering		-	
Time of starting a course	Spring term	Day of the	Intensive	Credit(s)	2	
		week,period				
Faculty	Graduate Progra	am for Master's Degre	ee	Subject grade	1~	
Department Offered	Architecture and	d Civil Engineering		Beggining	M1	
				grade		
Charge teacher name[Roman	S5系教務委員	5kei kyomu Iin-S				
alphabet mark]						
Numbering	ARC_MAS53025					
Objectives of class						
It depends on the laboratory. T	he resistered stu	udents are required	to attend all the s	eminars, which is	arranged by the	
laboratory supervisor for the spe	cial study subjec	ts related to the cur	rent research activi	ty of the laborator	y. The scheduled	
program of the seminars is annou	inced by the supe	rvisor at the guidance	e of the seminar.			
Contents of class						
In each seminar, students purs	sue several resea	arch topics and/or	undertake projects	collectively and	solelv under the	
instruction of the faculty member	rs of the departme	ent and/or those of o	ther departments.		,	
Self Preparation and Review			•			
Review each lecture and prepare	for the next class	s with reference to th	e textbook			
Related subjects						
N/A						
1777						
Notes for to the state						
Papers(resume)will be distributed.						
Notes for reference						
N/A	N/A					
Goals to be achieved						
Evaluation of achievement						
This credit is assigned for all the	e process for the	oral presentation or	report. But fundam	entally the estima	tion of this class	
would depends on the supervisor	of each laborator	у.				
Examination						
レポートで実施						
By Report						
Details of examination						
Report						
Other information						
N/A						
Reference URL						
N/A						
Office hours						
N/A						
Relations to attainment objective	s of learning and	education				
Key words						

(M45630350)Water Environment Engineering[Water Environment Engineering]

Subject name[English]	Water Environment Engineering[Water Environment Engineering]						
Schedule number	M45630350	Subject area		a.	Advanced	Required or	Elective
					Architecture	elective	
					and Civil		
					Engineering		
Time of starting a course	Spring term	Day	of	the	Mon.3~3	Credit(s)	2
		week,	period				
Faculty	Graduate Progran	n for Ma	ister's	Degre	e	Subject grade	1~
Department Offered	Architecture and	Civil En	gineer	ing		Beggining	M1
Charge teacher name[Poman	井上 隆信 横田 久里子 INQUE Takanobu YOKOTA Ku			riko			
alphabet mark]							
Numbering	ARC MAS54025						
Objectives of class							
To know and understand the wate	er quality change in environment and treatment system						
To know and understand the wate	er quality managem	ent.					
Contents of class							
All lectures are face-to-face.							
water quality change in environme	ant and treatment of	vetem					
1 fundamental equation of the	mass halance	system.					
2 piston flow model							
3 complete mixing model							
4 reaction rate							
5 complete mixing model with r	eaction						
6 piston flow model with reactiv							
b pistori now moder with reaction							
drinking water treatment and waste water treatment							
/ rapid sand filtration process	*****						
8 activated sludge treatment pr	ocess						
(Inoue)							
Water pollutants and management							
9-10 environmental standard							
11-12 nutrients, organic matter	itrients, organic matter						
3-14 chemicals in water environment							
(Yokota)							
If there will be any changes regarding Toyohashi University of Technology Activity Restrictions Level for							
Preventing the Spread of Corona virus, the course content and evaluation of achievement are subject to change.							
If there is any changes about a class schedule, I will inform you on Google Classroom or KYOMU JOHO SYSTEM.						EM.	
Self Preparation and Review							
Review each lecture and prepare	Review each lecture and prepare for the next class with reference to the textbook.						
Related subjects							
N/A							
Notes for textbook							
No textbook is required for this c	textbook is required for this class.						
NOTES TOF RETERENCE	Notes for reference						
Goale to be sobioved							
To understand the water palletter	and anvironments	lauolity	ctond	lard			
To understand the pister flam of	d complete missing a	r quality	stario	aru.			
To understand the piston flow an	u complete mixing r	noael					
	- 44 - 11 - 11 - 1	91 L			- 11		
[Evaluation basis] Students who attend all classes will be evaluated as follows:							
S: Achieved all goals and obtained total points of reports and presentation, 90 or higher (out of 100 points).							
A: Achieved 80 % of goals and ob	tained total points o	ot report	ts and	prese	ntation, ou or highei	r (out of 100 points	5).

B: Achieved 70 % of goals and obtained total points of reports and presentation, 70 or higher (out of 100 points).
C: Achieved 60 % of goals and obtained total points of reports and presentation, 60 or higher (out of 100 points).
Examination
レポートで実施
By Report
Details of examination
N/A
Other information
N/A
Reference URL
N/A
Office hours
Wednesday 12:00- 13:00
Relations to attainment objectives of learning and education
Key words