Syllabus

International Master's Degree Program (2018-Spring Term)

(M40030010)Management Science[Management Science]

Subject name[English]	Management	Science[Managemen	t Science]			
Schedule number	M40030010		Subject area	General courses	Required or elective	Elective
Time of starting a course	Spring term		Day of the week.period	Thu.1~1	Credit(s)	2
Faculty	Graduate Pro	ogram for Master's De	egree	I	Subject	1~
Department Offered	Mechanical E	Engineering, Architect	ure and Civil Eng	ineering, Electrical	Beggining	M1
	and Electro	nic Information Eng	gineering, Compu	ter Science and	grade	
<u>.</u>	Engineering,	Environmental and Li	fe Sciences			
Charge teacher	滕原 孝男 ト	UJIWARA Takao				
name_roman aipnabet						
Numbering	GEN LIB523	25				
Objectives of class		20				
Study objective is to lea	rn an analytica	l canability on social	and managerial ne	repectives		
This class introduces h	asic finance k	nowledge to underst	and the managerial pe	ial idea and the to	ol for the comm	any value and
capital cost						
Teaching language is ma	inly dependent	on English.				
Contents of class		0				
The class will disucss at	out basic idea	s on the valuation of	financial option a	s a derivative base	d on the element	tary probabiity,
interest rate, and arbitra	ge theory.					
Class content will includ	e following top	ics:				
#1: baic probability,						
#2: normal random varial	ole,					
#3: geometric Brownian	motion,					
#4: interest rates,						
#5: arbitrage trade,						
#6-7: Black Scholes for	nula,					
#8-10: additional items;	dividend, jump,	and volatility estimat	ion,			
#11: valuation by expect	ed utility,					
#12: stochastic order, #12: antimization model						
#13: optimization model, #14: group exercises abo	out husiness nl	an				
#15: group exercises abo	out business pr	resentation				
#16: semester examinati	on.	obonicación,				
Self Preparation and Re	view					
Teaching materials will h	ne unloaded at	moodle Attending st	udents are expec	ted to complete pre	- and re-views	investigate by
themselves, and ask the	lecturer.					invoorigato by
Related subjects						
Management (undergrad	luate), Operat	ions Management, F	Real Options, Ga	me Theory, MOT,	Entrepreneurs	nip, Innovation
Management.		U .	• •	• • •	•	•
Notes for textbook						
As noted above, materia	ls will be uploa	ded at moodle.				
Reference1	Book title	An Elementary Int	roduction to Mat	hematical Finance	ISBN	978-0-521-
	(3rd.ed.) 19253-					
	Author	Sheldon M. Ross	Publisher	Cambridge	Publish year	2011
				University		
				Press		
Notes for reference						
Goals to be achieved						
1) To understand the me	eaning of norma	al random variable.				
2) To comprehend the b	asic model stru	cture of Black Schol	es formula.			
3) To value an European	call option as	a financial derivative.				

Evaluation of achievement

Evaluation Style:

Evaluation weight allocation is planned as Semester Examination 60%, Reports 20%, and Presentation 20%.

Evaluation Criteria:

Bachelor 3rd year, Master 1st year

S: If students achieved every above goals and their summed scores are equal or more than 90 (the maxim scores 100).

A: If students achieved 80% of above goals and their summed scores are equal or more than 80 (the maxim scores 100).

B: If students achieved at least 70% of above goals and their summed scores are equal or more than 70 (the maxim scores 100).

C: If students achieved at least 60% of above goals and their summed scores are equal or more than 60 (the maxim scores 100).

The others

A: If students achieved every above goals and their summed scores are equal or more than 80 (the maxim scores 100).

B:If students achieved at least 65% of above goals and their summed scores are equal or more than 80 (the maxim scores 100).

C:If students achieved at least 55% of above goals and their summed scores are equal or more than 55 (the maxim scores 100).

Examination

定期試験を実施(対面) Examination(Face to Face)

Details of examination

Other information

Reference URL

Office hours

At any time if available.

Relations to attainment objectives of learning and education

(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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 (B)技術者としての正しい倫理観と社会性 技術者としての専門的・倫理的責任を自覚し、社会における技術的課題を設定・解決・評価する能力 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 (B)技術者としての正しい倫理観と社会性 技術者としての専門的・倫理的責任を自覚し、社会における技術的課題を設定・解決・評価する能力 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 (B)技術者としての正しい倫理観と社会性 技術者としての専門的・倫理的責任を自覚し、社会における技術的課題を設定・解決・評価する能力 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 (B)技術者としての正しい倫理観と社会性 技術者としての専門的・倫理的責任を自覚し、社会における技術的課題を設定・解決・評価する能力 (A)豊かな人間性と幅広い考え方 自然と人間との共生を目的とし、地球的な視点から多面的に物事を考える能力 (B)技術者としての正しい倫理観と社会性 実践的・創造的・指導的な技術者としての社会的・倫理的責任を自覚し、技術的課題を解決する能力

Key words Real Options, Game Theory, Operations Management, Management

(M40030050)Japanese Life Today[Japanese Life Today]

Subject name[English]	Japanese Life Today[Japanese Life Today]						
Schedule number	M40030050	Subject area	General	Required or	Elective		
			courses	elective			
Time of starting a course	Spring term	Day of the	Fri.1~1	Credit(s)	2		
		week,period					
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~		
Department Offered	Mechanical Eng	ineering, Architect	ture and Civil	Beggining grade	M1		
	Engineering, Elec	Engineering, Electrical and Electronic Information					
	Engineering, Cor	nputer Science a	and Engineering,				
	Environmental and	d Life Sciences					
Charge teacher name[Roman	S総合一教務委員	S総合一教務委員, Lim Pang Boey, 大門裕之, 穗積 直裕, 井佐原均, 福本昌宏, 岩佐					
alphabet mark]	精二, 齊藤 大樹, 髙嶋 孝明, 伊藤 公毅, 和泉 司, 武藤 浩行, 藤原 孝男, 毛利 雅子,						
	加藤 三保子, 中村 大介 Sougou kyoiku kyomu Iin, Lim Pang Boey, DAIMON Hiroyuki,						
	HOZUMI Naohiro, ISAHARA Hitoshi, FUKUMOTO Masahiro, IWASA Seiji, SAITOH Taiki,						
	TAKASHIMA Takaaki, ITO Koki, IZUMI Tsukasa, MUTO Hiroyuki, FUJIWARA Takao, MOURI						
	Masako, KATOH M	lihoko, NAKAMURA	Daisuke				
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. Lim Pang Boey "Japanese Education System"

Learn about the Japanese education system and what the life of a student is like in Japan?

2. Daimon "Working in Japanese Company"

Learn and discuss about working in Japanese company and what you should do for it.

3. 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.

4. Isahara "Computer and Japanese"

Japanese language is very much different from other languages. Problems caused by such differences during computer processing of Japanese are discussed in this lecture.

5.Fukumoto "Introduction of advanced surface modofication and welding technology in Japan"

Two advanced materials processing will be introduced. One is on the surface modification technology based on the particles deposition. Thermal spray, Cold spray and Aero-sol deposition will be explained. Another is on the welding technology based on the friction stirring. Fundamental aspects on FSW will be given in the lecture.

6. 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-

7. 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.

8.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.

9. Ito "Progress in pure mathematics in Japan"

In this lecture, we focus on the progress in pure mathematics in Japan after World War II; especially we give a brief introduction to 1. the work done by Kunihiko Kodaira, who is the first Japanese mathematician awarded to Fields Medal, and 2. algebraic analysis, promoted strongly by Japanese mathematicians (e.g. Mike Sato, Kazuhiko Aomoto, etc.)

10. Nakamura "Cinema of Japan"

Japan is recognized as one of the most creative countries in the movie culture. Regarding films such as Naruse, Ozu,Godzilla and "Chanbara", students will learn some aspects of Japanese movie culture.

11. 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.

12. Fujiwara "Japaneses-style Business Management"

Since 1980s, Japanese management style has become popular in automobile, electrical, and electronics industries in terms of employment, promotion, and industrial relations for quality control and skill transfer. We will discuss its advantages and disadvantages.

13. Mouri "Legal interpreting in Japan"

Japan has faced the numbers of foreign national criminals along with the globalization. This class explains the criminal justice, in particular focusing on foreign national criminals and legal interpreting in Japan.

14. Kato "Japanese culture and their mind"

This lecture will provide students with an opportunity to become familiar with Japanese culture and its artifacts as well as an understanding of the differences between Japan and other countries. Students will be expected to demonstrate knowledge of the way Japanese people think or act and their cultural heritage.

15.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.

Self Preparation and Review

Related subjects

N/A

Notes for textbook

Notes for reference

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:

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, 65 or higher (out of 100 points).

C: Achieved at least 55 % of goals and obtained total points of exam and reports, 55 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
 機械工学専攻 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 電気・電子情報工学専攻 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 情報・知能工学専攻 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 環境・生命工学専攻 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力 建築・都市システム学専攻 (A)雪かな人間性と幅広い考え方 自然と人間との共生、人類の幸福・健康・福祉について考える能力
Key words Japan, Japanese, Culture, Religion, Politics & Economy, Technology

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

Subject name[English]	Principles of	Japanese Conversa	tion[Principles of	Japanese Conversat	ion]				
Schedule number	M40030080		Subject area	General courses	Required or elective	Elective			
Time of starting a course	Spring term		Day of the week,period	Wed.1~1	Credit(s)	2			
Faculty	Graduate Pr	Graduate Program for Master's Degree Subject 1~							
D					grade				
Department Offered	Mechanical I	Engineering, Archited	cture and Civil Eng	gineering, Electrical	Beggining	M1			
	Engineering	Environmental and L	ife Sciences	iter Science and	grade				
Charge teacher	村松 由起子	MURAMATSU Yuk	iko						
name[Roman alphabet mark]									
Numbering	GEN_LIB540	25							
Objectives of class	1								
This is a Basic Japanes	e conversatio	n class. You will lear	rn elementary Japa	anese grammar and	vocabulary to s	peak Japanes			
on campus.				-		-			
Contents of class									
Students will learn the f	ollowing lessor	ns in Japanese textb	ook" Basic Japan	ese for Students Ha	kase1".				
	-								
1. Pronunciation of Jana	anese								
2. Lesson 1 Haiimemash	ite. Watashi wa	a Heren desu.							
3. Lesson 2 O-kuni wa d	lochira desuka								
4. Lesson 3 Sore wa nai	n desuka.								
5. Lesson 4 Watashi wa	asa koohii o no	omimasu.							
6. Lesson 5 Ima nan−ji c	lesuka.								
7. Lesson 6 Ashita doko	e ikimasu ka.								
8. Lesson 7 Juu-gatsu j	uu-go-nichi ni	Nihon e kimashita.							
9. Lesson 8 Kyooshitsu	ni dare ga imas	su ka.							
10.Lesson 9 Yuubinkyok	u wa doko ni a	rimasu ka.							
11.Lesson 10 Nihon e ro	botto no kenk	yuu ni kimashita.							
12.Lesson 11 Fuji-san v	/a kireina yama	a desu.							
13.Lesson 12 Ryokoo w	a doo deshita k	<a.< td=""><td></td><td></td><td></td><td></td></a.<>							
14.Lesson 13 Shuumats	u ni nani oshita	ai desu ka.							
15.Lesson 14 Ongaku ga	a suki desu ka.								
The term examination									
Self Preparation and Re	view								
Preparation: Please read	d Vocabulary a	nd Notes in each les	sson.						
Review:Please memorize	e "Structures"	after each lesson.							
Related subjects									
Basic Japanese Classe	s (Nihongo Ho	koo):If you want to	know more details	, please contact the	e International /	Affairs Divisio			
(Kokusaikooryuuka).									
					1	1			
Textbook1	Book title	Basic Japanese fo	or Students Hakas	e 1 (はかせ1)	ISBN				
	Author	Yamazaki	Publisher	3A Corporation	Publish year				
		yoshiko, Do	i	(スリーエーネッ					
		mitsuru		トワーク)					
Notes for textbook									
Notes for reference									
Goals to be achieved									
1)You will be able to un	derstand basic	Japanese structure	s and grammatical	items.					
2)You will be able to co	nmunicate with	h Japanese people in	n easy Japanese						
Further of a chiman	ant		, p						

Evaluation Weight Homework 40% The term examination 60% Grade A:Total score is 80 or higher B:Total score is 65 or higher C:Total score is 55 or higher

Examination

その他 Other

Details of examination

Other information

Reference URL

Office hours

Tuesday 13:00-13:30

Relations to attainment objectives of learning and education

電気・電子情報工学専攻 (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、自然と人間との共生、人類の幸福・健康・福祉について考える能力

Key words

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

Subject name[English]	Seminar on Mech	anical Engineering I	Seminar on Mech	anical Engineering I]			
Schedule number	M41610010	Subject area	Advanced	Required or	Required		
			Mechanical	elective			
			Engineering				
Time of starting a course	Year	Day of the	Intensive	Credit(s)	4		
_		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_MAS51015						
Objectives of class							
The seminar aims to provide a br	oad understanding	of the mechanical e	ngineering availab	le for the master the	sis research of a		
student.	0		0 0				
Contents of class							
The class provides both of funda	amental knowledge	of his/her master t	hesis research wo	ork and the most ad	vanced results in		
the related field by reading rese	earch papers and r	nonographs. The co	ontents of the cla	iss depend on the s	supervisor. To be		
announced by individual supervise	ors.	U I U U					
Self Preparation and Review							
Dalata di sublicata							
Related subjects							
Notes for textbook							
Textbook or material will be made	e available from the	supervisors.					
Notes for reference							
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 problems.	and the presenta	tion skill.			
	· ·	•	•				
Evaluation of achievement							
Coursework presentation and/or	report						
Examination	report.						
EXamination 計除加目中には何もなわい							
武駅朔间中には19も行わない None during exam period							
Details of examination							
Other information							
Reference URL							
Office hours							
Relations to attainment objective	es of learning and e	ducation					
Key words							

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

Subject name[English]	Seminar on Mech	anical Engineering II	Seminar on Mech	anical Engineering II		
	M41610020	Subject area	Advanced	Required or	Required	
			Mechanical	elective	Roquirou	
			Engineering	ciccure		
Time of starting a course	Year	Dav of the	Intensive	Credit(s)	2	
		week.period				
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	2~	
Department Offered	Mechanical Engine	eering		Beggining	M1	
				grade		
Charge teacher name[Roman	S1系教務委員 1	kei kyomu Iin−S				
alphabet mark]						
Numbering	MEC_MAS61015					
Objectives of class						
The seminar aims to provide a bro	oad understanding	of the mechanical e	ngineering available	e for the master the	sis research of a	
student.						
Contents of class						
The class provides both of funda	mental knowledge	of his/her master t	hesis research wo	rk and the most ad	vanced results in	
the related field by reading rese	arch papers and n	nonographs. The co	ontents of the clas	ss depend on the s	upervisor. To be	
announced by individual superviso	ors.					
Self Preparation and Review						
Related subjects						
Notes for textbook						
Textbook or material will be made	available from the	supervisors.				
Notes for reference						
Goals to be achieved						
To acquire fundamental knowledge	e of individual resea	arch fields.				
To acquire the ability to find prob	lems, the ability to	solve the problems,	and the presentat	ion skill.		
Evaluation of achievement						
Coursework, presentation and/or	report.					
Examination						
試験期間中には何も行わない						
None during exam period						
Details of examination						
Other information						
Peference I IDI						
Office hours						
Relations to attainment objective	s of learning and e	ducation				
Key words						

(M41610030)Thesis Research on Mechanical Engineering[Thesis Research on Mechanical Engineering]

Subject name[English]	Thesis Research	on Mechanical Engi	neering[Thesis Re	search on Mechanica	I Engineering]	
Schedule number	M41610030	Subject area	Advanced	Required or	Required	
			Mechanical	elective		
			Engineering			
Time of starting a course	2Years	Day of the week.period	Intensive	Credit(s)	6	
Faculty	Graduate Program	n for Master's Degr	ee	Subject grade	1~2	
Department Offered	Mechanical Engin	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					
Objectives of class						
The thesis research aims to pr understanding of relevant knowle	ovide a practical e dge.	experience of resea	arch work, and to	acquire research s	kills with a deep	
Contento of class						
The research subject depends	on the supervisor	and the research	group you join. Ir	ndividual students w	ill have different	
research subjects. Discuss with y	our supervisor.					
Self Preparation and Review						
Related subjects						
Notes for textbook						
Reference and material will be av	ailable from the su	pervisor.				
Notes for reference						
Goals to be achieved						
To get something new on individu	al research fields.					
To develop your research skills in	cluding planning an	d presentation skills	5.			
Evaluation of achievement						
Examination						
None during exam period						
Details of examination						
Other information						
Reference URL						
Office hours						
Balations to attainment abjectives of learning and advection						
relations to attainment objectives of learning and education						
Kəy words						

M41610030)Thesis Research on	Mechanical Engineering	Thesis Research on	Mechanical Engineering
	MOUTAINOAL LIGHTOUTING		

Subject name[English]	Thesis Research	on Mechanical Engi	neering[Thesis Res	earch on Mechanica	I Engineering]	
	M41610030	Subject area	Advanced	Required or	Required	
	MITTO TO COO	Cubject al ca	Mechanical	elective	Required	
			Engineering	000000		
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6	
	210010	week period			•	
Faculty	Graduate Program	n for Master's Degre		Subject grade	1~1	
Department Offered	Mechanical Engin	eering		Beggining	M1. M2	
	U	0		grade		
Charge teacher name[Roman	S1系教務委員,	1系各教員 1kei kyo	mu Iin-S, 1kei kaku	ukyouin		
alphabet mark]		-		-		
Numbering	MEC_MAS61015					
Objectives of class						
The thesis research aims to pro understanding of relevant knowled	ovide a practical e dge.	experience of resea	rch work, and to	acquire research s	kills with a deep	
Contents of class						
The research subject depends	on the supervisor	and the research	group you join. In	dividual students w	vill have different	
research subjects. Discuss with y	our supervisor.					
Self Preparation and Review						
Related subjects						
Notes for textbook						
Reference and material will be av	ailable from the su	pervisor.				
Notes for reference						
Goals to be achieved						
To get something new on individu	al research fields.					
To develop your research skills in	cluding planning an	d presentation skills	S.			
Evaluation of achievement						
Examination						
試験期間中には何も行わない						
איאראין אוויא אוויא איי None during exam period						
Details of examination						
Other information						
Reference URL						
Office hours						
Relations to attainment objectives of learning and education						
Totacons to attaining it objectives of learning and education						
Key words						

(M4161003T)Thesis Research on Mechanical Engineering[Thesis Research on Mechanical Engineering]

Subject name[English]	Thesis Research	on Mechanical Engi	neering[Thesis Res	search on Mechanica	l Engineering]		
Schedule number	M4161003T	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 Program	n for Master's Degre	e	Subject grade	2~		
Department Offered	Mechanical Engin	eering		Beggining	M1		
	0.1万批办千日	· T 权 北 日		grade			
Charge teacher name[Roman	51 糸 教 務 安 貝,	I 糸谷教員 I kei kyoi	mu lin-S, Tkei kaki	ukyouin			
alphabet mark	MEC MAS61015						
					lille side e dese		
The thesis research aims to pr	ovide a practical e	experience of resea	rch work, and to	acquire research s	kills with a deep		
understanding of relevant knowled	uge.						
Ountants of slave							
The response cubicat denoted	on the automic	and the wares-			اللهميرم وانطوم ومراجع		
research subject Discuss with	on the supervisor	and the research	group you join. Ir	iuividuai students W	m nave different		
Self Preparation and Paview	our supervisor.						
Deleted subjects							
Related subjects							
Notes for textbook							
Reference and material will be av	ailable from the sup	bervisor.					
Notes for reference							
Goals to be achieved							
To get something new on individu	al research fields.	d nuceentetien ekille					
To develop your research skills in	iciuding planning an	in presentation skills	i.				
Frankin et an							
試験期间中には何も1772ない	試験期間中には何も行わない						
None during exam period							
Other Information							
Defenses LIDI							
Office hours							
Relations to attainment objectives of learning and education							
Key words							
itey words							

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

Subject name[English]	Seminar on Mech	anical Engineering[S	Seminar on Mecha	nical 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 Program	n for Master's Degre	ee	Subject grade	2~		
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_MAS61015						
Objectives of class							
The seminar aims to provide a br	oad understanding	of the mechanical e	ngineering availab	le for the master the	esis research of a		
student.							
Contents of class							
The class provides both of funda	amental knowledge	of his/her master t	hesis research w	ork and the most ad	vanced results in		
the related field by reading rese	earch papers and r	monographs. The co	ontents of the cla	ass depend on the s	supervisor. To be		
announced by individual supervise	ors.						
Sen Preparation and Review							
.							
Related subjects							
Notes for textbook							
Textbook or material will be made	e available from the	supervisors.					
Notes for reference							
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 problems,	and the presenta	tion skill.			
Evaluation of achievement							
Coursework, presentation and/or	report.						
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							
1							
1							
Key words							

(M41630070)Joining and Surfacing of Materials[Joining and Surfacing of Materials]

Subject name[English]	Joining and Surfa	Joining and Surfacing of Materials[Joining and Surfacing of Materials]					
Schedule number	M41630070	Subject area	Advanced	Required or	Elective		
			Mechanical	elective			
			Engineering				
Time of starting a course	Spring1 term	Day of the	Tue.1~1	Credit(s)	1		
		week,period					
Faculty	Graduate Program	Graduate Program for Master's Degree			1~		
Department Offered	Mechanical Engine	eering		Beggining	M1		
				grade			
Charge teacher name[Roman	福本 昌宏 FUKUMOTO Masahiro						
alphabet mark]							
Numbering	MEC_MAS54025						

Objectives of class

To understand fundamentals of advanced technology in materials joining, especially both in high performance thick coating formation by Thermal Spraying, Cold Spraying, Aero-sol Deposition, and in non-melting diffusion bonding by Friction Stir Welding.

To understand fundamentals of advanced technology in materials joining, especially both in high performance thick coating formation by Thermal Spraying, Cold Spraying, Aero-sol Deposition, and in non-melting diffusion bonding by Friction Stir Welding.

Contents of class

- 1. Fundamental of surface modification process and technology
- 2. Fundamentals of thermal spray process, Splat formation problem
- 3. Process control with Transition temperature & Transition pressure

4. Cold spraying and Aero-sol deposition process, Functional materials coating: photocatalyst, SOFC, nano coating, intermetallic compound coating, etc.

- 5. Fundamental of Friction Stir Welding
- 6. Joining between disimillar materials by FSW
- 7.5. Friction spot welding, practical applications of FSW
- 8. Examination
- 1. Fundamental of surface modification process and technology
- 2. Fundamentals of thermal spray process, Splat formation problem
- 3. Process control with Transition temperature & Transition pressure
- 4. Cold spraying and Aero-sol deposition process, Functional materials coating: photocatalyst, SOFC, nano coating, intermetallic compound coating, etc.
- 5. Fundamental of Friction Stir Welding
- 6. Joining between disimillar materials by FSW
- 7.5. Friction spot welding, practical applications of FSW
- 8. Examination

Self Preparation and Review

Related subjects

Basic knowledge on materials joining process is desirable.

Basic knowledge on materials joining process is desirable.

Notes for textbook

Handouts will be prepared for participants. (Reference)

Required readings will be taken from a variety of reference books and research papers.

Handouts will be prepared for participants.

(Reference)

Required readings will be taken from a variety of reference books and research papers.

Notes for reference

Goals to be achieved

Understand following items,

-Joining mechanism between dissimilar materials
-Features and mechanism of various joining methods
-Features and mechanism of thick and thin film coating
-Features of functionally gradient material and composite material
Understand following items
-Joining mechanism between dissimilar materials
-Features and mechanism of various joining methods
-Features and mechanism of thick and thin film coating
-Features of functionally gradient material and composite material
Evaluation of achievement
Interim report & presentation (20%) and term-end report (80%).
Interim report & presentation (20%) and term-end report (80%).
Examination
レポートで実施
By Report
Details of examination
Other information
Masahiro Fukumoto:
Room: D-503, ext.: 6692, e-mail: fukumoto@tut.jp
Masahiro Fukumoto:
Room: D-503, ext.: 6692, e-mail: fukumoto@tut.jp
Reference URL
http://isf.me.tut.ac.jp/
http://isf.me.tut.ac.jp/
Office hours
anytime to e-mail address: fukumoto@tut.jp
anytime to e-mail address: fukumoto@tut.jp
Relations to attainment objectives of learning and education
Key words
Joining in dissimilar maretials, Surface modification, Thermal spraying, Cold spraying, FSW
Joining in dissimilar maretials, Surface modification, Thermal spraying, Cold spraying, FSW

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

Subject name[English]	Advanced Mecha	anical Systems Desig	n II[Advanced Me	chanical Systems De	sign II]		
Schedule number	M41630220	Subject area	Advanced	Required or	Elective		
			Mechanical	elective			
			Engineering				
Time of starting a course	Spring term	Dav of the	Mon.4~4	Credit(s)	2		
•		week.period					
Faculty	Graduate Progra	m for Master's Degre	e	Subject grade	1~		
Department Offered	Mechanical Engir	neering		Beggining	M1		
-				grade			
Charge teacher name[Roman	S1系教務委員1	1 kei kyomu Iin−S					
alphabet mark]							
Numbering	MEC_MAS53025						
Objectives of class							
This lecture aims to provide a br	oad understanding	of the mechanical s	ystems design av	ailable for the maste	r thesis research		
work of a student.							
Contents of class							
The class provides both of funda	amental knowledge	of his/her master t	hesis research wo	ork and the most ad	vanced results in		
the related field by reading rese	arch papers and	monographs. The co	ontents of the cla	iss depend on the s	upervisor. To be		
announced by individual supervise	ors.						
Self Preparation and Review							
Related subjects							
Notes for textbook							
Textbook or material will be made	available from the	supervisors					
Notes for reference		e supervisors.					
Goole to be achieved							
To acquire fundamental knowledge	o of individual room	arah fialda					
To acquire fundamental knowledg	lomo the shility to	archinelus.	and the presentat	ion akill			
To acquire the ability to find prob	iems, the ability to	solve the problems	and the presentat	ION SKIII.			
Evaluation of achievement							
Coursework presentation and/or	report						
Examination							
None during exam period							
Details of examination							
Other information							
Beference LIBI							
Office hours							
Relations to attainment objective	s of learning and e	education					
Key words							

Subject name[English]	Advanced Materials and Manufacturing Process II[Advanced Materials and I Process II]					nd Manufa
Schedule number	M41630240	Subject	area	Advanced Mechanical	Required or elective	Elective
Time of starting a course	Spring term	Day o	of the	Engineering Tue.4~4	Credit(s)	2
Faculty	Graduate Progra	am for Maste	er's Degr	ee	Subject grade	1~
Department Offered	Mechanical Eng	ineering			Beggining grade	M1
Charge teacher name[Roman alphabet mark]	S1系教務委員	1kei kyomu	Iin-S			1
Numbering	MEC_MAS54025	5				
Objectives of class						
This lecture aims to provide a br research work of a student.	oad understandin	g of the mat	erials and	d manufacturing p	rocess available for t	he master
announced by individual supervise Self Preparation and Review	ors.					
Related subjects						
Goals to be achieved To acquire fundamental knowledg To acquire the ability to find prob	e of individual res plems, the ability t	earch fields. so solve the l	problems	and the presenta	tion skill.	
Evaluation of achievement						
Coursework, presentation and/or	report.					
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 objective	es of learning and	education				

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

Subject name[English]	Advanced System	Control and Robo	tics II[Advanced Sv	stem Control and F	Robotics II]		
	M41630260	Subject area	Advanced	Required or	Flective		
	1111000200		Mechanical	elective	LICOLIVO		
			Engineering	0.000.00			
Time of starting a course	Spring term	Dav of the	Thu.4~4	Credit(s)	2		
		week.period					
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~		
Department Offered	Mechanical Engine	eering		Beggining	M1		
				grade			
Charge teacher name[Roman	S1系教務委員 1	kei kyomu Iin−S					
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.							
Contents of class							
The class provides both of funda	amental knowledge	of his/her master t	hesis research wor	k and the most ad	vanced results in		
the related field by reading rese	arch papers and m	nonographs. The co	ontents of the clas	s depend on the s	upervisor. To be		
announced by individual superviso	ors.						
Self Preparation and Review							
Related subjects							
Notaa far taxtbaak							
Tauthack or material will be made	, available from the						
Neteo for reference	available from the	supervisors.					
Notes for reference							
	C						
To acquire fundamental knowledg	e of individual resea	arch fields.					
To acquire the ability to find prob	lems, the ability to	solve the problems	and the presentation	on skill.			
Evaluation of achievement							
Coursework, presentation and/or	report.						
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							
Key words							

	a Environmental Er	igineering IILAdvand	ed Energy and En	vironmental Enginee	nng Uj
Subject name[English]	Advanced Energy Engineering II]	and Environment	al Engineering II[A	dvanced Energy ar	nd Environmental
Schedule number	M41630280	Subject area	Advanced Mechanical Engineering	Required or elective	Elective
Time of starting a course	Spring term	Day of the week,period	Fri.4~4	Credit(s)	2
Faculty	Graduate Progran	n for Master's Degre	e	Subject grade	1~
Department Offered	Mechanical Engin	eering		Beggining grade	M1
Charge teacher name[Roman alphabet mark]	S1系教務委員 1	kei kyomu Iin−S			
Numbering	MEC_MAS56025				
Objectives of class					
This lecture aims to provide a bro research work of a student.	oad understanding o	of the energy and e	nvironmental engin	eering available for t	he master thesis
Contents of class					
The class provides both of funda the related field by reading rese	mental knowledge arch papers and n	of his/her master t nonographs. The co	hesis research wo ontents of the cla	rk and the most ad ss depend on the s	vanced results in upervisor. To be
announced by individual superviso	ors.				
Self Preparation and Review					
Related subjects					
Notes for textbook					
Textbook or material will be made	available from the	supervisors.			
Notes for reference					
Goals to be achieved					
To acquire fundamental knowledg	e of individual resea	arch fields.			
To acquire the ability to find prob	lems, the ability to	solve the problems	and the presentati	on skill.	
Evaluation of achievement					
Coursework, presentation and/or	report.				
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 objective	s of learning and e	ducation			
Key words					
NUY HUING					

(M41630310)Vibration Engineering[Vibration Engineering]

Subject name[English]	Vibration Engi	neering[Vibration [Engineering]			
Schedule number	M41630310		Subject area	Advanced	Required or	Elective
				Mechanical	elective	
				Engineering		
Time of starting a	Spring1 term		Day of the	Tue.2~2	Credit(s)	1
course			week,period			
Faculty	Graduate Pro	gram for Master's I	Degree		Subject	1~
					grade	
Department Offered	Mechanical Er	ngineering			Beggining	M1
					grade	
Charge teacher	河村 圧造 K/	AWAMURA Shozo				
namelRoman alphabet						
mark j		05				
Numbering	MEC_MAS530	25				
Objectives of class						
学部の振動工学・応用振	動工学で 1 自	由度系, 2 自由度	系の振動解析に	ついて学んでいるが,	実際の機械・構	造物は非常に
大規模自由度を有してい	る. そのため, 1	よじめに一般的な	多自由度系を扱う	モード解析について	講義を行う 次に	こ, 大規模自由
度の振動解析を簡便に行	うことのできる	部分構造合成法に	ついて講義し、そ	れらの基本的な考え	方を理解する.	
This lecture will provide	the knowledge	of modal analysis	s method and co	mponent mode synt	hesis method to	o treat a huge
degree of freedom system	n.					
Contents of class						
多目由度糸のモート解析						
1:モード解析の導入,不)	咸 衰糸					
2:比例粘性减衰糸(1)						
3:比例粘性減衰糸(2) (言次: いの影響						
4: 高次モートの影響						
部分構造合成法						
5:分系の定式化	b . c					
6:拘束モード型モード合	或法(1)					
7:拘束モード型モード合	或法(2)					
8:不拘束モート型モート1	合成法					
Modal analysis for multi o	legree of freedo	om system				
1: Introduction of modal a	analysis, undam	bed system				
2: A system with proport	ional viscous da	mping (1)				
3: A system with proport	ional viscous da	mping (2)				
4: Compensate of higher	vibration modes	3				
Component mode synthe	sis method					
5: Formulation of sub-sys	stems					
6: Modal synthesis using	constraint mode	es (1)				
/: Modal synthesis using	constraint mode	es (2)				
8: Modal synthesis using	non-constraint	modes				
Self Preparation and Rev	/IGW トフトトナノー 、/の、	国の中南について	シュンジャン マン・シュ	シーマ 羽レ ナノフーし		
		回の内容について	多 方貝科守を のうちょう ひんしょう ひんしょう ひんしょう ひんしょう しょうしょう ひょうしょう しょうしょう ひょうしょう ひょう ひょう ひょう ひょう ひょうしょう ひょう ひょう ひょう ひょう ひょう ひょう ひょう ひょう ひょう ひ	ミニア首してくること。		
Sell-preparation and revi	ew are necessa	ry.				
Notacou Subjects 教学 機械力学 振動力	学 戊田塩動士	受				
数于,11及11次ノ子,11次則上子,11小川派到上子 Dunamics Vibratian angineering Mechanical vibratian						
Dynamics, vibration engineering, mechanical vibration						
10009 101 00,0000						
Handouts will be prepare	d.				-	
Reference1	Book title	モード解析			ISBN	
	Author	長松昭男	Publisher	培風館	Publish vear	
Reference2	Book title	部分構造合成法			ISBN	
	Author	官 扒叨用, 土	Dublicker	位回窃	Dubliah	
		武山山方・人	rudiisrier		rudiish year	
Reference3	Book title	振動工学-応用	編一		ISBN	

	Author	安田仁彦	Publisher	コロナ社	Publish year			
Notes for reference	1		I		I	I.		
Goals to be achieved								
(1)多自由度系のモード解	解析について基	礎的な理解を得る	こと					
(2) 部分構造合成法につ	いて基礎的な理	解を得ること						
(1) Understand the moda	l analysis for mu	ulti degree of freed	lom system					
(2) Understand the comp	onent mode syr	thesis method						
	nt 法由た 0 回のし	ᅷ L(100 노);;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	「大気はする」					
評価法 注风日候の到 証価其准・証価注による	達度を 2 回の₽ 得占が 55 占以	小一P(100 忌両忌) トの提会を会核(達) () 評1回9 る. 1911日 暦 (1 列達) 1月	トートオス				
市画空半・市画広によるの たお得占によって	「達成の程度を日	ロテする 評価 A:3	80 占い上 評価 F	こ/Cy/の. 3・65 占以上 評価(: 55 占以上			
-200 [1] M(1-2) C								
Mathadi yanayt (full asay	100)							
Level: achievement in the	= 100). e case upper 55	nointe						
Level A: upper 80 points.	Level B: upper	65 points. Level C	: upper 55 points					
Examination		<u> </u>	<u> </u>					
レポートで実施								
By Report								
Details of examination								
Other information								
河村庄造:部屋番号 D-4	04, E-Mail:kaw	amura@me.tut.ac.jp	D					
Contact person: Prof. Sn	iozo Kawamura I	=-Mail:kawamura@i	me.tut.ac.jp					
Office hours								
Eメール等で随時時間を	打ち合わせる							
Ask by E-mail.								
Relations to attainment objectives of learning and education								
Key words								
モード合成法部分構造	合成法							
Modal analysis, Compone	ent mode synthe	sis method						

(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 Elec	Electrical and Electronic Information Engineering]					
Schedule number	M42610020	Subject area	Advanced	Required or	Required		
			Electrical and	elective			
			Electronic				
			Information				
			Engineering				
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6		
Feaulty	Graduate Program	for Master's Degre		Subject grade	1~2		
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining	M2		
			Engineering	grade	in2		
Charge teacher name[Roman	S2系教務委員 2	kei kyomu Iin−S					
alphabet mark							
Numbering							
Objectives of class							
The thesis research aims to prov	/ide a practical exp	erience of research	n 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							
The research subject depends or	the supervisor an	d the research gro	up vou belong to F	verv student will h	ave an individual		
research subject. For more detail	s, please contact w	ith your supervisor.					
Self Preparation and Review							
Palatad subjects							
Natao Cantanaka ali							
Reference and material will be available	ailable from the sup	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 present	ation.				
Evaluation of achievement							
Presentation Thesis Coursework	and Outcomes are	e evaluated generall	v				
Examination		o ovalaatoa gonorali	<i>.</i>				
None during exam period							
Details of examination							
Other information							
D-f-m-m-s-LIDI							
Office hours							
Relations to attainment objectives of learning and education							
Key words							

(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 course	2Years	Day of the	Intensive	Credit(s)	6	
THIS VI STALLING A VOLISO		week,period			Ŭ	
Faculty	Graduate Progran	n for Master's Degre	e	Subject grade	1~1	
Department Offered	Electrical and Ele	ctronic Information	Engineering	Beggining	M2	
Charge teacher name[Roman	S2系教務委員 2	2系各教員 2kei kvoi	mu Iin-S. 2kei kakuk	sraue vouin		
alphabet mark]						
Numbering	ELC_MAS51025					
Objectives of class						
The thesis research aims to pro-	vide a practical exp	perience of research	n work, and to acqu	iire his/her researd	ch skill with deep	
understanding of the electrical ar	nd electronic inform	ation engineering.				
Contents of class						
The research subject depends o	n the supervisor ar	nd the research gro	up you belong to. E	very student will h	ave an individual	
research subject. For more detail	s, please contact w	ith your supervisor.				
Self Preparation and Review						
Deleted auk!t-						
Related SUDJects						
Natao fay taytha -!-						
Reference and material will be av	ailable from the our	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 plann	ing and the presenta	ation.			
Evaluation of achievement						
Presentation, Thesis, Coursework	, and Outcomes are	e evaluated generall	у.			
Examination						
試験期間中には何も行わない						
None during exam period						
Other information						
Reference LIRI						
Office hours						
Pelations to attainment objective	e of learning and a	ducation				
Notations to attainment objective	s or loarning and 6	uuuuu				
Key words						

(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 week,period	Intensive	Credit(s)	6		
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	2~2		
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining grade	M2		
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_MAS51015						
Objectives of class							
The thesis research aims to prov	vide a practical exp	erience of research	n work, and to acqu	ire his/her researd	ch skill with deep		
understanding of the electrical an	d electronic informa	ation engineering.					
Contents of class		2					
The research subject depends o	n the supervisor an	d the research gro	up you belong to. E	every student will h	nave an individual		
research subject. For more detail	s, please contact w	ith your supervisor.					
Self Preparation and Review							
Related subjects							
Notes for textbook							
Reference and material will be av	ailable from the sup	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 presenta	ation.				
Evaluation of achievement							
Presentation Thesis Coursework	and Outcomes are	e evaluated generall	v				
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 objective	Relations to attainment objectives of learning and education						
Key words							

(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	Subject area	Advanced	Required or	Required			
			Electrical and	elective				
			Electronic					
			Engineering					
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~			
Department Offered	Electrical and Ele	ctronic Information	Engineering	Beggining grade	M1			
Charge teacher name[Roman	S2系教務委員 2I	kei kyomu Iin−S						
alphabet mark								
	ELC_MA351015							
The cominar aims to provide a h	road understanding	, of theoretical and	experimental appro	aches related to t	he electrical and			
electronic information engineering	o for the research w	york of his/her mast	ter thesis	oches related to t	ne electrical and			
Contents of class								
The class provides both of funda	mental knowledge o	n the research worl	of master thesis a	nd the most advand	ced results in the			
related field by reading research	papers and monogra	aphs. Contents of t	ne class depend on	the supervisor. To	be announced by			
individual supervisors.								
Self Preparation and Review								
Related subjects								
Notes for textbook								
Textbook or material will be made	e available from the	supervisor. To be a	nnounced by individ	ual supervisors.				
Notes for reference								
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	ation skill.				
		0.						
Evaluation of achievement								
Coursework, presentation and/or	report.							
Examination								
試験期間中には何も行わない								
None during exam period								
Details of examination								
Other information								
Reference LIDI								
Office hours	Office hours							
Relations to attainment objective	es of learning and e	ducation						
Key words								

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

Subject name[English]	Seminar on Electrical and Electronic Information Engineering 1A[Seminar on Electrical and						
	Electronic Inform	Electronic Information Engineering 1A]					
Schedule number	M42610050	Subject area	Advanced	Required or	Required		
			Electrical and	elective			
			Electronic				
			Information				
			Engineering				
Time of starting a course	Year	Day of the	Intensive	Credit(s)	4		
En avilla i	Cuaduata Duamuan	week,period		Cubicat meda	1		
Faculty Department Offered	Electrical and Ele	atronic Information	e Engineering	Subject grade	T∼ M1		
			Lingineering	grade			
Charge teacher name[Roman	S2系教務委員 2	kei kvomu Iin-S		8.000			
alphabet mark]		5					
Numbering	ELC_MAS51015						
Objectives of class							
The seminar aims to provide a b	oroad understanding	g of theoretical and	experimental appro	baches related to t	the electrical and		
electronic information engineering	g for the research w	vork of his/her mast	er thesis.				
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							
Related subjects							
Notes for textbook							
Textbook or material will be made	e available from the	supervisor. To be a	nnounced by individ	lual supervisors.			
Notes for reference							
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 probl	lem and the present	tation skill.			
Evaluation of achievement							
Coursework, presentation and/or	report.						
試験期間中には何も行わない							
None during exam period							
Oth an information							
Other Information							
Deferrer e UDI							
Reference URL							
Office hours							
Relations to attainment objective	es of learning and e	ducation					
Key words							

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

Subject name[English]	Seminar on Electrical and Electronic Information Engineering 18[Seminar on Electrical and				
	Electronic Information Engineering 1B				
Sebedule number	M42610060 Subject area Advanced			Permired or	Paguirad
	10142010000	Subject al ca	Flectrical and		Nequired
			Electrical and	01000140	
			Liectronic		
			Information		
T C L L	V		Engineering	0 (1)	0
lime of starting a course	Year	Day of the	Intensive	Great(s)	Z
Provide a	Que du et a Due muer	week,period		Out to at any da	0
	Graduate Program	n for Master's Degre		Subject grade	<i>Z</i> ∼
Department Offered	Electrical and Ele	ctronic information	Engineering	Beggining	IVI I
Observed to a base of Damage	00 조	Lai la construction C		grade	
	32术软伤安良 2	kei kyömu im-3			
	ELC_MASSIUIS				
Objectives of class					
The seminar aims to provide a b	oroad understanding	g of theoretical and	experimental appro	oches related to t	the electrical and
electronic information engineering	g for the research w	vork of his/her mast	ter thesis.		
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					
Related subjects					
-					
Notes for textbook					
Tauthaals as material will be made	, available from the	aumamiaan Taha a	منابعة معالمه والمعانية	ual aun am da ana	
Textbook or material will be made	e avaliable from the	supervisor. To be a	nnounced by individ	ual supervisors.	
Notes for reference					
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	ation skill.	
Evaluation of achievement					
Coursework, presentation and/or report.					
Examination					
試験期間中には何も行わない					
None during exam period					
Details of examination					
Other information					
Office hours					
Relations to attainment objectives of learning and education					
Key words					
÷ ·····					

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

Schedule number M42630110 Subject area Advanced	Required	or	Elective		
Electrical	and elective				
Electronic					
Informatic	n				
Engineerir	g				
Time of starting a courseSpring termDay of theTue.3~3	Credit(s))	2		
week,period					
Faculty Graduate Program for Master's Degree	Subject	grade	1~		
Department Offered Electrical and Electronic Information Engineering	Begginin	g	M1		
	grade				
Charge teacher name Roman S2糸教務委員 2kei kyomu Iin-S					
alphabet markj					
Numbering ELC_MAS38023					
Objectives of class					
The class aims to provide a basic understanding of R&D methodology related to	o the electrical a	nd elect	ronic information		
engineering for the research work of his/her master thesis.					
Contents of class					
The class provides some fundamental tips to conduct R&D work effectively. Conte	nts of the class o	lepend o	on the supervisor.		
to be announced by individual supervisors.					
Sen Preparation and Keview					
Related subjects					
Notes for textbook					
To acquire the ability of identifying and formulating research problem, planning	and implementing	specific	c research tasks,		
troubleshooting and communicating outcomes.					
Notes for reference					
Goals to be achieved					
To acquire the ability of identifying and formulating research problem, planning	and implementing	specific	c research tasks.		
troubleshooting and communicating outcomes.		•	,		
Evaluation of achievement					
Coursework and presentation are evaluated generally.					
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 house					
Office hours					
Relations to attainment objectives of learning and education					
Kay warda					
Key words					

(M42630150)Physics for Electronics 2[Physics for Electronics 2]

Subject name[English]	Physics for Electronics 2[Physics for Electronics 2]				
Schedule number	M42630150 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 for Master's Degree			Subject grade	1~
Department Offered	Electrical and Electronic Information Engineering			Beggining	M1
				grade	
Charge teacher name[Roman	松田 厚範, 服部 敏明, 石山 武 MATSUDA Atsunori, HATTORI Toshiaki, ISHIYAMA				
alphabet mark]	Takeshi				
Numbering	ELC_MAS53025				

Objectives of class

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

Contents of class

"Physics for Electronics 2'' is composed of four topics of functional materials, photonics, electrodics, and spin electronics, which will be delivered for three times for each by four 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 "photonics" is devoted to the understanding of interactions between photon (light wave) and materials based on the quantum theory and also to industrial applications of photonic devices. 1) Optoelectronic devices, 2) optical processes in semiconductors and exciton, 3) nanomaterial.

The category of "spin electronics" covers a wide area from fundamentals to applications of magnetic materials and magnetics. 1) Origin of magnetics, 2) Soft and hard magnetic materials, 3) Major applications of magnetics and magnetic materials, 4) Interaction phenomena among spins and various physical quantities, 5) Micro-magnetic devices and systems, 6) Spintronics and spin photonics.

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 four categories (25%); functional materials, photonics, electrodics, spin electronics.
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
Photonics; Takeshi Ishiyama: ishiyama@ee.tut.ac.jp
Spin electronics: Hiroyuki Takagi : takagi@ee.tut.ac.jp
Reference URL
http://www.ee.tut.ac.jp/material
Office hours
one hour after every classes
Relations to attainment objectives of learning and education
Key words
functional materials, photonics, spin electronics, ionics, micro-optics, electrodics

(M42630190)Electrical Technology and Materials 2[Electrical Technology and Materials 2]

Subject name[English]	Electrical Techno	logy and Materials 2	[Electrical Technolo	ogy and Materials 2]
Schedule number	M42630190	Subject area	Advanced	Required or	Elective
			Electrical and	elective	
			Electronic		
			Information		
			Engineering		
Time of starting a course	Spring term	Day of the	Tue.2~2	Credit(s)	2
		week,period			_
Faculty	Graduate Program	n for Master's Degre		Subject grade	~ M1
Department Offered	Electrical and Ele	ctronic information	Engineering	Beggining	IVI I
Charge teacher name[Roman	須田 善行 稲田	高·中、村 ト 義信 S	SUDA Yoshiyuki, INA	DA Rvoii, MURAK	AMI Yoshinobu
alphabet mark]			,		
Numbering	ELC_MAS53025				
Objectives of class					
This lecture is implemented as a	n introduction to e	electrical energy sys	tems and intended	for students and o	other engineering
disciplines. It is being useful as re	eference and self-s	study guide for the p	professional dealing	with this important	t area. There are
following three sub courses to ch	oose from.				
This lecture is implemented as a	n introduction to e	electrical energy sys	tems and intended	for students and o	other engineering
disciplines. It is being useful as re	eference and self-s	study guide for the p	professional dealing	with this important	t area. There are
following three sub courses to ch	oose from.				
Contents of class					
Sub Course 1(Y. Suda)					
1. Fundamental concept of electric	ical energy enginee	ring			
2. Three-phase systems					
3. Power electronics					
Sub Course 2(R. Inada)		Deview			
1. Introduction of Electrochemica 2. Lithium-Jon Secondary Batterio	I Energy Conversion	n Devices			
3 Recent Trend in Electrochemic	al Energy Conversi	on Devices			
Sub Course 3(Xo Murakami)					
1 Introduction of Electric Energy	Systems				
2. High Voltage Engineering and E	lectrical Insulation				
3. Fundamental Properties of Diel	lectrics and Electric	cal Insulating Materia	als.		
Sub Course 1(Y. Suda)		-			
1. Fundamental concept of electri	ical energy enginee	ring			
2. Three-phase systems					
3. Power electronics					
Sub Course 2(R. Inada)					
1. Introduction of Electrochemica	I Energy Conversion	n Devices			
2. Lithium-Ion Secondary Batterie	es				
3. Recent Trend in Electrochemical Energy Conversion Devices					
Sub Course 3(Yo. Murakami)					
1. Introduction of Electric Energy Systems					
2. Flight voltage Engineering and Electrical Insulation 3. Fundamental Properties of Dielectrics and Electrical Insulating Materials					
Self Preparation and Review					
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.					
Notes for reference

Goals to be achieved

Evaluation of achievement

Marks are based on examinations(100%). Marks are based on examinations(100%).

Examination 定期試験を実施(対面)

Examination(Face to Face)
Details of examination

Other information

Reference URL

(1) J. Larminie and A. Dicks: Fuel Cell Systems Explained (Wiley)

- (2) M. Yoshio, R.J. Brodd and A. Kozawa: Lithium Ion Batteries: Science and Technologies (Springer-Verlag)
- (3) E. Kuffel, W. Zaengel and J. Kuffel: High Voltage Engineering (Newnes)

(1) J. Larminie and A. Dicks: Fuel Cell Systems Explained (Wiley)
(2) M. Yoshio, R.J. Brodd and A. Kozawa: Lithium Ion Batteries: Science and Technologies (Springer-Verlag)
(2) F. K. K. L. W. Z. L. L. L. K. Kozawa: Lithium Ion Batteries: Science and Technologies (Springer-Verlag)

(3) E. Kuffel, W. Zaengel and J. Kuffel: High Voltage Engineering (Newnes)

Office hours

Relations to attainment objectives of learning and education

(M42630230)LSI Process 2[LSI Process 2]

Subject name[English]	I SI Process 2[I S	I Process 2]			
	LSI Frocess 2[L3	Subject area	Advanced	Domuined on	Floativo
	10142030230	Subject area	Auvanceu Electricel and	Required or	Liective
			Electrical and	elective	
			Electronic		
			Information		
	0 1 1		Engineering	a w ()	
lime of starting a course	Spring term	Day of the	■ Thu.2~2	Gredit(s)	2
	0 I I D	week,period			
Faculty	Graduate Program	n for Master's De	gree	Subject grade	1~
Department Offered	Electrical and Ele	ctronic Informatio	n Engineering	Beggining	M1
			· +++= >+ + + + + + + + + + + + + + + + +	grade	
Charge teacher name Roman	▶ 澤田 和明, 石川	靖彦, 関口 寛	人, 高橋 一浩 SAW	ADA Kazuaki, ISH	IKAWA Yasuhiko,
alphabet mark	SEKIGUCHI Hirot	o, TAKAHASHI Ka	zuhiro		
Numbering	ELC_MAS54025				
Objectives of class					
From the viewpoint of deep unde	rstanding of LSI pr	ocesses, semicon	ductors devices inclu	ding material desgi	n and an example
of latest device will be lectured.					
From the viewpoint of deep unde	rstanding of LSI pr	ocesses, semicon	ductors devices inclu	ding material desgi	n and an example
of latest device will be lectured.					
Contents of class					
Integrated circuits					
Sensor processing					
Optical devices					
MEMS/NEMS					
Latest MOS FETs					
Current topics in IC/MEMS/sens	or				
Integrated circuits					
Sensor processing					
Optical devices					
MEMS/NEMS					
Latest MOS FETs					
Current topics in IC/MEMS/sens	or				
Self Preparation and Review					
Related subjects					
The basic knowledge on the quan	tum mechanics, the	ermodynamics, and	l electronics are desi	rable.	
		-			
Semiconductor Physics. Master o	ourse				
The basic knowledge on the quan	tum mechanics, the	ermodynamics, and	l electronics are desi	rable.	
····		,			
Semiconductor Physics, Master o	ourse				
Notes for textbook					
Physics of Semiconducotr Device	es				
S.M.Sze. Willy					
Physics of Semiconducotr Device	es				
S.M.Sze, Willy					
Notes for reference					
Goals to be achieved					
(1) To understand fundamental as	spects on LSI proce	ess, and semicond	uctor devices includir	ng material design.	
(2) To get the knowledge on the I	atest technologies	on LSI process.			
(1) To understand fundamental as	spects on LSI proce	ess, and semicond	uctor devices includir	ng material design.	
(2) To get the knowledge on the I	atest technologies	on LSI process.			
Evaluation of achievement	2	-			
Reports (100%)					
Reports (100%)					

- · ·
Examination
レポートで実施
By Report
Details of examination
Other information
K. Sawada (C-605)
sawada@ee.tut.ac.jp
Y. Ishikawa (C-607)
ishikawa@ee tut ac in
H Sekinuchi (C-610)
sengucine estudia: jp
ext. 0/44
K. Takahashi (G=606)
takahashi@ee.tut.ac.jp
ext. 6740
K.Sawada (C-605)
sawada@ee.tut.ac.jp
Y. Ishikawa (C-607)
ishikawa@ee.tut.ac.ip
H Sekiguchi (C-610)
sekinishidea tutas ja
ove 674
ext. 0/44
N. Takanashi (C=000)
takahashi@ee.tut.ac.jp
ext. 6740
Reference URL
http://www.tut.ac.jp/english/introduction/02EE.pdf
(department)
nttp://www.intee.tut.ac.jp/
(devision)
http://www.tut.ac.jp/english/research/research_highlights.html
(research activities)
http://www.tut.ac.in/english/introduction/02EE.pdf
(densitient)
http://www.int.ee.tut.ac.jp/
(devision)
http://www.tut.co.jp/opgliph/roccorrely/roccorrely.highlights.html
(incomplete activities)
(research activities)
book an appointment by e-mail, phone, etc.
book an appointment by e-mail, phone, etc.
Relations to attainment objectives of learning and education
Key worde

(M42630250)Information and Communication Technology 2[Information and Communication Technology 2]

Subject name[English]	Information and (2]	Communication Tec	hnology 2[Informati	on and Communic	ation Technology
Schedule number	M42630250	Subject area	Advanced Electrical and Electronic Information Engineering	Required or elective	Elective
Time of starting a course	Spring term	Day of the week,period	Mon.3~3	Credit(s)	2
Faculty	Graduate Program	for Master's Degre	e	Subject grade	1~
Department Offered	Electrical and Elec	ctronic Information	Engineering	Beggining grade	M1
Charge teacher name[Roman alphabet mark]	大平 孝,上原 秀	转, 竹内 啓悟 OH	IRA Takashi, UEHA	RA Hideyuki, TAKE	UCHI Keigo
Numbering	ELC_MAS55025				

Objectives of class

Students select one course from the following three courses:

A first course is intended for learning how to design microwave circuits needed for advanced wireless communication systems and wireless power transmission systems. The distributed constant element theory is addressed to characterize linear circuits at high frequencies. Based on this technique, students challenge synthesis of a variety of microwave signal and power processing functions.

A second course is intended for learning mainly medium access control, multi-hop communications and other topics related to wireless networks. Students are required to give solutions of the problems which cause performance degradation.

The last course is intended for learning point-to-point communication systems, multiuser communication systems, and multiple-input multiple-output (MIMO) systems in the physical layer of wireless communications. Students challenge a unified understanding of existing advanced schemes in wireless communications.

Contents of class

Course 1 provided by Prof. Ohira:

- 1. Transmission lines
- 2. Scattering matrix
- 3. Mizuhashi Smith chart

Course 2 provided by Prof. Uehara:

1. Medium access control protocols

- 2. Multi-hop communications
- 3. Ad hoc and sensor networks

Course 3 provided by Prof. Takeuchi:

- 1. Point-to-point communication systems
- 2. Multiuser communication systems
- 3. MIMO systems

Self Preparation and Review

Related subjects

Course 1:

Deep understanding on electromagnetic field theory, linear passive and reciprocal circuit theory, and sophisticated experience on complex and matrix mathematics are prerequisite.

Course 2:

The students who will take this course are supposed to have sufficient knowledge about the following; wireless digital modulation and demodulation, radio propagation characteristic, signal processing, probability, random variables and stochastic process.

Course 3:

Basic understanding on modulation/demodulation, signal processing, probability theory, and information theory are prerequisite.

Notes for textbook

Course 1: Lecture on the blackboard without resorting to textbooks.

Course 2: Instruct in 1st class.
Course 3: Same as Course 2.
Notes for reference
Goals to be achieved
Course 1:
- Understand the distributed constant elements and concept of scattering matrix.
- Derive frequency responses on linear RF circuits exploiting Mizuhashi Smith chart.
- Characterize various kinds of high frequency functional circuits and compose them based upon given specifications.
Course 2:
- Understand the mechanism of medium access control and multi-hop communications
 Understand the characteristics of ad hoc and sensor networks
 Present a solution or a new application for the above
Course 3:
- 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 the final test.
Course 2: Marks are based on reports and presentations.
Course 3: Marks are based on reports and tests.
Examination
定期試験を実施(対面)
Examination(Face to Face)
Details of examination
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
Kev words

microwave, circuit, electromagnetic field, Smith chart, scattering matrix, distributed constant element, wireless networks, medium access control, multi-hop, wireless communications, modulation/demodulation, MIMO

	Seminar on Cor	inputer Scien	ce an	d Engineering I[S	eminar on Compu	iter Science an
Schedule number	M43610010	Subject are	8	Advanced Computer Science and Engineering	Required or elective	Required
Time of starting a course	Year	Day of week.period	the I	Intensive	Credit(s)	4
Faculty	Graduate Program	n for Master's	Degre	e	Subject grade	1~
Department Offered	Computer Scienc	e and Engine	ering		Beggining grade	M1
Charge teacher name[Roman alphabet mark]	S3系教務委員−	-2, S3系教務	委員	3kei kyomu Iin−S2,	3kei kyomu Iin−S	
Numbering	CMP_MAS71015					
The course is intended for stu- science and engineering. It is also aimed for students to and technical discussion and writ	dents to study bas acquire various ski ing.	sic materials Ils, required ir	in dep 1 gene	th, related to his/ ral research work,	'her research sub <u></u> such as those for	jects in compute oral presentatior
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。					
Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. 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 (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 information	理解でき、わかりや 解釈でき、作文できる 5。 提供ができる。 で指摘できる。 ure on state-of-the ition written in Engl tion of a technical p I presentation. nation by questions	つすく説明でき る。 -art areas of ish, and to wr paper. S.	3₀ expert	ise, and to explain h information in En	clearly. glish.	

試験期間	中には何	も行わない
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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

Subject name[English]	Seminar on Con	nputer Science an	d Engineering II[Se	minar on Compu	ter Science and
	Engineering II]				
Schedule number	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 Program	n for Master's Degre	e	Subject grade	2~
Department Offered	Computer Scienc	e and Engineering		Beggining	M1
o	00万批改千号 /	00万批改千号 00		grade	
Charge teacher name_Roman	53杀教務安員,3	53糸软務安員-23	kei kyomu lin-5, 3ke	ei kyomu lin-52	
	CMD MAS71015				
	CIVIF_IVIA3/1013				
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	する最先端の技術 答できる能力を養う lents to study bas acquire various skil ing.	情報(特に英語によ 。 sic materials in dep lls, required in gene	る最先端の技術情報 th, related to his/ł ral research work, s	報)を発見する能力 ner research subje uch as those for o	り、ならびに、その ects in computer oral presentation
While specific contents depend of 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.	on the research ar ers and report on th す・復習を行う。	reas students are in hem, as well as to pr	nvolved in, it is usu resent and discuss o	ally the case for on the research wo	students to read rk of their own.
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 (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 oral (5) To point out the lack of inform	理解でき、わかりや 課でき、作文できる。 それができる。 で指摘できる。 re on state-of-the tion written in Engl tion of a technical p presentation. nation by questions	すく説明できる。 5。 -art areas of expert ish, and to write suc paper.	ise, and to explain c h information in Eng	learly. glish.	
Evaluation of achievement 技術情報の発見に向けた自主性	、技術情報の理解	度、説明の方法、質	[問への回答、議論	への参加の様子等	から総合的に指
導教員が判定する。 Will be evaluated by taking into a involvements and so on.	accout various fac	tors overall, such a	s technical explanat	ion, question ansv	vering, discussion

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.

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

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

Subject name[English]	Thesis Research	on Computer Sci	ence and Engineer	ing[Thesis Resear	ch on Computer
Sabadula number	Science and Engin	neering	Advanced	Pequired or	Required
Schedule humber	WI43010030	Subject area	Computer	elective	Required
			Science and		
			Engineering		
Time of starting a course	2Years	Day of the week.period	Intensive	Credit(s)	6
Faculty	Graduate Progran	n for Master's Degre	e	Subject grade	1~2
Department Offered	Computer Science	e and Engineering		Beggining grade	M2
Charge teacher name[Roman alphabet mark]	S3系教務委員, S	33系教務委員-23	kei kyomu Iin−S, 3ko	ei kyomu Iin-S2	
Numbering					
Objectives of class					
The course is intended for studer	nts to foster their i	nterests in research	problems on comp	uter science and e	ngineering and to
acquire ability for independent stu	udies.				
It is also aimed for students to ac	quire, through thes	is research, cooper	ativeness, a sense o	of responsibility, ab	ilities for problem
solving, research planning, decisio	on making, outcome	presentation and s	ubject investigation,	and to enhance th	eir creativity and
persistency, among others.					
Contents of alacs					
Contents of class	research is carried	out on individual ha	ses with specific co	ntents differing fro	m one student to
another.			ses with specific co	internes unrening iro	in one student to
Consult with your advisor for any	further details.				
Self Preparation and Review					
Consult with your advisor for the	m.				
Related subjects					
Consult with your advisor for the	m.				
Consult with your advisor for the	m				
Consult with your advisor for the					
Notes for reference					
Goals to be achieved					
To acquire abilities for doing res	earch and develop	ment at technically	high level, sophist	cated decision ma	king, and leading
large scale research projects.					
Evaluation of achievement					
Three faculty members will be a	assigned to prepar	e the evaluation to	r your thesis resea	arch, based on pul	plication records,
	on. It will be then		ity meeting.		
None during exam period					
Details of examination					
Other information					
Reference URL					
Office hours					
Relations to attainment objective	s of learning and e	ducation			

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

Subject name[English]	Thesis Research	n on Computer Sci	ence and Engineer	ing[Thesis Resear	ch on Computer
	Science and Engi	neering]			
Schedule number	M43610030	Subject area	Advanced	Required or	Required
			Computer	elective	
			Science and		
			Engineering		-
Time of starting a course	2Years	Day of the	Intensive	Credit(s)	6
Franks.	Que du et a Due mai	week,period		Out is at any de	11
Faculty Department Offered	Graduate Program	m for Master's Degr	ee	Subject grade	~ M1
Department Offered	Computer Science	e and Engineering		Beggining	
Charge teacher name[Roman	C3玄教務委員	3 3 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2	数 孫 岙 昌 ― 2 3 レ ai l	womu lin-S 3kei	kakukvouin 3kei
elnhabet mark]	kvomu lin-S2				Kakakyoani, okoi
Numbering	CMP MAS61015				
The course is intended for studen	nts to foster their	interests in researci	n problems on comp	uter science and e	ngineering and to
acquire ability for independent still	uales.				114
It is also almed for students to ac	cquire, through the	sis research, cooper	ativeness, a sense o	or responsibility, ab	lifties for problem
solving, research planning, decisio	on making, outcome	e presentation and s	ubject investigation,	and to enhance tr	ieir creativity and
persistency, among others.					
<u> </u>					
Contents of class					
It is usually the case that thesis i	research is carried	out on individual ba	ses with specific co	ntents differing fro	m one student to
another.	C 11 1 1 1				
Consult with your advisor for any	further details.				
Self Preparation and Review					
Consult with your advisor for the	m.				
Related subjects					
Consult with your advisor for the	m.				
Notes for textbook					
Consult with your advisor for the	m.				
Notes for reference					
Goals to be achieved					
To acquire abilities for doing res	search and develor	ment at technically	v high level sonhist	icated decision ma	king and leading
large scale research projects					and localing
Evaluation of achievement					
Three faculty members will be	assigned to prepar	re the evaluation fo	r vour thesis resea	arch, based on pul	blication records
master thesis, and oral presentat	ion. It will be then	finalized by the fact	ulty meeting.	alon, sacca chi pa	
Examination					
試験期間中には何も行わない					
None during exam period					
Details of examination					
Other information					
D. fammer UDI					
Keterence UKL					
Office hours					

Relations to attainment objectives of learning and education

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

Subject name[English]	Thesis Research	on Computer Sci	ence and Engineer	ing[Thesis Resear	ch on Computer
	Science and Engi	neering]			
Schedule number	M4361003T	Subject area	Advanced	Required or	Required
			Computer	elective	
			Science and		
Time of starting a course	Year	Day of the	Intensive	Credit(s)	6
	1 cui	week.period	Inconsive	Ci cuicos	0
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	2~
Department Offered	Computer Scienc	e and Engineering		Beggining	M2
				grade	
Charge teacher name[Roman	S3系教務委員,	3系各教員, S3系	教務委員一23kei	kyomu Iin-S, 3kei	kakukyouin, 3kei
alphabet mark	Kyomu lin-S2				
Objectives of class					
The course is intended for stur	dents to study bas	ic materials in der	th related to his/	her research subi	acts in computer
science and engineering	dents to study bas				
It is also aimed for students to a	acquire various skil	ls, required in gene	ral research work, s	such as those for	oral presentation,
and technical discussion and writ	ing.				
Contents of class					
While specific contents depend	on the research ar	reas students are i	nvolved in, it is usu	ually the case for	students to read
relevant textbooks/research pape	ers and report on th	nem, as well as to p	resent and discuss	on the research wo	ork of their own.
Self Preparation and Review					
Related subjects					
Consult with your advisor.					
Notes for textbook					
Consult with your advisor.					
Notes for reference					
Casla ta ba cabiavad					
To acquire chilities for technical	readings in English	logical thinking /evo	lanation and clear r	recentation	
For acquire abilities for technical	readings in English,	logical triinking/ exp	iariación, and clear p	resentation.	
Will be evaluated by taking into	accout various fact	tors overall. such a	s technical explana	tion. question ansv	vering. discussion
involvements and so on.		,		<i>,</i> ,	5,
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 objective	es of learning and e	ducation			
Key words					
-					

	Seminar on Co	mputer Science a	nd Engineering[Se	minar on Comput	ter Scier
	Engineering]	1	T	n.	T
Schedule number	M43610040	Subject area	Advanced Computer Science and Engineering	Required or elective	Require
Time of starting a course	Year	Day of the week,period	Intensive	Credit(s)	6
Faculty	Graduate Program	m for Master's Degre	e	Subject grade	2~
Department Offered	Computer Scienc	e and Engineering		Beggining grade	M1
Charge teacher name[Roman alphabet mark]	S3系教務委員, \$	S3系教務委員一23	kei kyomu Iin−S, 3k	ei kyomu Iin-S2	
Numbering	CMP_MAS61015				
12円目和ビビモ府、武功・「貝茲・ルン The course is intended for stuc science and engineering. It is also aimed for students to a and technical discussion and writ	目できる能力を強い lents to study bas acquire various ski	sic materials in dep lls, required in gene	oth, related to his/ ral research work, s	her research subje such as those for	ects in o oral pres
Consult with your advisor.					
Related subjects 指導教員に問い合わせること。 Consult with your advisor.					
Related subjects 指導教員に問い合わせること。 Consult with your advisor. Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. Notes for reference					
Related subjects 指導教員に問い合わせること。 Consult with your advisor. Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. Notes for reference Goals to be achieved					
Related subjects 指導教員に問い合わせること。 Consult with your advisor. Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. Notes for reference Goals to be achieved (1)最先端の専門分野の英文が語 (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程 (5)情報の不足を質問という形式	理解でき、わかりや 深でき、作文できる っ 星供ができる。 で指摘できる。	っすく説明できる。 る。			
Related subjects 指導教員に問い合わせること。 Consult with your advisor. Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. 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 informa (3) To make a standard construct (4) To provide information by oral	理解でき、わかりや 駅でき、作文できる。 で指摘できる。 で指摘できる。 re on state-of-the tion written in Engl ion of a technical p presentation.	つすく説明できる。 る。 e-art areas of expert lish, and to write suc paper.	ise, and to explain o	slearly. glish.	
Related subjects 指導教員に問い合わせること。 Consult with your advisor. Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. 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 informa (3) To make a standard construct (4) To provide information by oral (5) To point out the lack of inform Evaluation of achievement	理解でき、わかりや 課でき、作文できる。 で指摘できる。 でも n state-of-the tion written in Engl ion of a technical p presentation. ation by questions	oすく説明できる。 る。 e-art areas of expert lish, and to write suc paper. s.	ise, and to explain o sh information in En	slearly. glish.	
Related subjects 指導教員に問い合わせること。 Consult with your advisor. Notes for textbook 指導教員に問い合わせること。 Consult with your advisor. Notes for reference Goals to be achieved (1)最先端の専門分野の英文が第 (2)技術的な情報を扱う英文が第 (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封 (5)情報の不足を質問という形式 (1) To understand English literatu (2) To interpret technical informa (3) To make a standard construct (4) To provide information by oral (5) To point out the lack of inform 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。 Will be evaluated by taking into a	聖解でき、わかりや 訳釈でき、作文できる。 で指摘できる。 で指摘できる。 でも n state-of-the tion written in Engl ion of a technical p presentation. hation by questions 、技術情報の理解 accout various fac	oすく説明できる。 る。 e-art areas of expert lish, and to write suc paper. s. 評度、説明の方法、質	ise, and to explain o ch information in En ft問への回答、議論 s technical explana	clearly. glish. への参加の様子等 tion, question ansv	

(M43630080)Computers and Education[Computers and Education]

Subject name[English]	Computers and Education[Computers and Education]						
Schedule number	M43630080	Subject area	Advanced	Required or	Elective		
			Computer	elective			
			Science and				
			Engineering				
Time of starting a	Spring term	Day of the	Mon.5~5	Credit(s)	2		
course		week,period					
Faculty	Graduate Program for Master's De	Subject	1~				
		grade					
Department Offered	Computer Science and Engineerin	g		Beggining	M1		
				grade			
Charge teacher	河合 和久 KAWAI Kazuhisa						
name[Roman alphabet							
mark]							
Numbering	CMP MAS52225						

Objectives of class

The purpose of the class is to deepen and broaden students' knowledge of their own expertise in relation to the society in learning about computers and technology in education.

The purpose of the class is to deepen and broaden students' knowledge of their own expertise in relation to the society in learning about computers and technology in education.

Contents of class

Students will be offered some overviews of computers and education. Students will give some presentations on the following problems: (1) to make the teaching plan of their own research subjects for pupils or junior high school students, (2) to make a simulated class based on the plan, (3) to discuss the simulated class. At the end of term, students are required to submit an essay on computers and education.

1.Guidance, Lecture#1(Introduction to subject "Information".)

2.Lecture#2(Computer system for education. and Software as course material.)

3.Lecture#3(Cooperation with the period of integrated study.)

4.Lecture#4(Simulated class: plan and evaluation.)

5.Lecture#5(Keep an "Information" teacher. and Teaching plan.)

6.Lecture#6(Information sending and presentation.)

7.Lecture#7(Group work by collaboration and presentation.)

8.Lecture#8(Media literacy., Information ethics education. and Network.)

9.Presentations of Teaching Plans #1

10.Presentations of Teaching Plans #2

11.Lecture#9(Expression of information and multimedia. and Topics in information society.)

12.Lecture#10(Algorithm and programming. and Information retrieval and database.)

13.Simulated Classes #1

14.Simulated Classes #2

15.Simulated Classes #3

16.Presentations of Final Reports

Students will be offered some overviews of computers and education. Students will give some presentations on the following problems: (1) to make the teaching plan of their own research subjects for pupils or junior high school students, (2) to make a simulated class based on the plan, (3) to discuss the simulated class. At the end of term, students are required to submit an essay on computers and education.

1.Guidance, Lecture#1(Introduction to subject "Information".)

2.Lecture#2(Computer system for education. and Software as course material.)

3.Lecture#3(Cooperation with the period of integrated study.)

4.Lecture#4(Simulated class: plan and evaluation.)

5.Lecture#5(Keep an "Information" teacher. and Teaching plan.)

6.Lecture#6(Information sending and presentation.)

7.Lecture#7(Group work by collaboration and presentation.)

8.Lecture#8(Media literacy., Information ethics education. and Network.)

9.Presentations of 1	Feaching Plans #1					
10.Presentations of	Teaching Plans #2	1 10 11 1	T · · · c			
11.Lecture#9(Expres	ssion of information	n and multimedia. and	lopics in infor	mation society.)		
12.Lecture#T0\Algor	nunm and programm	ning. and information	retrieval and da	alabase.)		
14 Simulated Classe	:5 #1 se #2					
15 Simulated Classe	s #3					
16.Presentations of	Final Reports					
Self Preparation and Students are require	d Review ed to solve the prol	blems mentioned abo	ve.			
Students are require	ad to colve the prol	blems mentioned abo				
			vo.			
Related subjects						
Notes for textbook						
Students will be offe	ered some overview	vs of "JOUHOUKA K		(the following reference	e) using WWW.	
Reference1	Book title		JIKUHOU (KAIT	(the following reference [EI SAN-HAN) *** in	ISBN	978-4-274-
	Author	JAPANESE ***	Publisher	OHM-SHA	Dublich veer	21920-7
	/ denoi	al.			i abiliti you	2010
Notes for reference)					
Goals to be achieve	bd					
At the end of the co the society, and to r	ourse, students will represent them usir	be able to deepen an ng computers and teo	nd broaden stu chnology in edu	dents' knowledge of the cation.	eir own expertis	e in relation to
At the end of the co	ourse, students will	be able to deepen a	nd broaden stu	dents' knowledge of the	eir own expertis	e in relation to
the society, and to i	represent them usir	ng computers and teo	chnology in edu	cation.		
Evaluation of achiev	/ement					
Written reports 50%.	. In class work 50%.					
Written reports 50%	In class work 50%.					
Examination						
授業を実施						
Regular Class						
Details of examinati	on					
Other information						
Reference URL						
http://www.ita.cs.tu	t.ac.jp/~kawai/kpe/	/ (Some pages are wr	ritten in Japane	ese.)		
http://www.ita.cs.tu	t.ac.jp/~kawai/kpe/	∕ (Some pages are wr	ritten in Japane	ese.)		
Office hours						
Office hours; Wedne	esday 2nd period an	nd Friday 2nd period i	n Room F1-206	6.		
Office hours; Wedne	esday 2nd period an	nd Friday 2nd period i	n Room F1-206	6.		
Relations to attainm	nent objectives of l	earning and educatio	n			

(M43630160)Quantum Biology and Materials Science[Quantum Biology and Materials Science]

Subject		logy and Materials	Solence[Ouantum	Biology and Materi	als Science]	
subject name[Fnglish]		blogy and materials	Science_Quantum	Diology and Materia	als Science]	
Schedule number	M43630160		Subject area	Advanced	Required or	Elective
			-	Computer	elective	
				Science and		
				Engineering		
Time of starting a	Spring term		Day of the	Tue.5~5	Credit(s)	2
course	0 1 1 0	6 M + 2	week,period		<u>.</u>	1
Гасилу	Graduate Pr	ogram for Master s	Degree		Subject	1~
Department Offered	Computer So	cience and Engineer	ring		Beggining	M1
Charge teacher	後藤 仁志(30TO Hitashi			grade	
name[Roman alphabet						
mark]						
Numbering	CMP_MAS53	025				
Objectives of class						
The objective of this cl	ass is to unde	erstand chemical. m	nolecular biologica	l and biophysical pł	nenomena that o	can be solved by
molecular simulation tec	hnologies.			, ,		
In achieving this object	ive, students v	will be required to	attempt to acquir	e the elementary c	oncepts in mole	ecular mechanics
(MM) method, molecula	r dynamics (N	MD) method, molec	ular orbital (MO)	method, and will	learn about the	ermodynamic and
electronic properties of	small molecul	es (drug candidate	compunds and or	ganic materials) and	biopolymers (p	roteins, RNA and
DNA).						
Contents of class						
Considering the prelimin	ary knowledge	e of the participates	s in this class, sor	ne topics from the f	following things	will be chosen to
the learned.	aine dation (1a	t week)				
(1) Outline of molecular	simulation (Is	tweek) dandlaad/eeshalm		athad (2nd and 2nd	(a ska	
(2) Molecular mechanic	(MD) method	a and local/grobal n	ninimum search m	ethod (Zha and 3rd)	weeks)	
(3) Molecular dynamics (4) Basis of quantum of	(MD) method	and motion equation	(4tr) and $5tr)$ we $(6th)$ $7t$	th and 8th weeks)		
(5) Stereochemistry, st	atistical therm		o) method (oth, 7)	ues (9th week)		
(6) Analyses of chemic	al reaction and	l crystal structure o	of organic molecul	es (10 and 11th wee	ks)	
(7) Biopolymer simulati	ons and bioinfo	ormatics (12th and	13rd weeks)			
(8) Chemoinformatics (n	nachine learnir	ng) and molecular de	esign theory (14th	and 15th weeks)		
Self Preparation and Re	view					
•						
Related subjects						
Natao fay tauthaak						
NOTES IOL TEXTDOOK						
documents distributed						
Reference1	Book title	Introduction to C	computational Che	mistry 3nd Ed	ISBN	978-
	DOOK GUB	Introduction to C		inistry, ond Ed.	1901	1118825990
	Author	Frank Jensen	Publisher	Wiley	Publish veer	2016
Notes for reference					i asiloli yoaf	2010
Ocale to be achieved						
Goals to be achieved		water all all a state	ala adam 12.1 - 2	Land King (1)		
molecular circulation to	ass is to unde	erstariu chemical, m	iolecular biologica	anu piopriysical pr	ienomena that o	carl be solved by
Evaluation of achiever	ant ologies.					
	nto who atter	d all alagaag will be	avaluated as fell.			
LEvaluation basis Stude	d obtained tet	u an classes will be		ows. higher (out of 100	vinte)	
A. Achieved all goals an	u obraineu rota	ai points of exam ar	iu reports, ou or r		mnts/.	

B: Achieved 80% of goals and obtained total points of exam and reports, 65 or higher (out of 100 points).

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

Examination

レポートで実施 By Report

Details of examination

Other information

Contact: F-307, {gotoh}@tut.jp

Reference URL

under construction Office hours

Please check the schedule by E-mail in advance.

Relations to attainment objectives of learning and education

Key words

Molecular Mechanics, Molecular Dynamics, Quantum Chemistry, Quantum Mechanics, Chemoinformatics

(M43630280)Web Data Engineering 1[Web Data Engineering 1]

Subject	Web Data Engineering 1[Web Data	Engineering 1]			
name[Fnglish]	Web Data Engineering TEWeb Data				
Schedule number	M43630280	Subject area	Advanced	Required or	Flective
		Julyove and	Computer	elective	
			Science and	5.00470	
			Engineering		
Time of starting a	Spring1 term	Day of the	Mon 1~1	Credit(e)	1
course	opring r term	week period		Ci Baic(a)	•
Faculty	Graduate Program for Master's De	gree		Subject	1~
i douity		5,00		grade	•
Department Offered	Computer Science and Engineering	r		Beggining	M1
				grade	
Charge teacher	青野 雅樹 AONO Masaki			0	
name[Roman alphabet					
mark]					
Numbering	CMP_MAS52425				
Objectives of class					
インターネット すたわ	ち Web トには 大量のデータがロノ	7作成•萎藉•雨部	されていろ この中	から有田たデー	タを検索 地
インダーネット、9 なれ	ら Web エには、八里の)ーメルロへ ションは彼め 佐教の Wab マプリム	(1F成・雷慎・史利 ション四でデー	されている。この中	から有用な)一 術士重要になっ	ツを快糸し、抽 てきている 特
田 9 つ Web アノリクー	ション技術で、複数の Web アフリク	ーション间でナー	- 2年ののとりりの技	1例も里安になう 7	している。村
こ、このようなビツグナー	-ツをとつ衣呪り るかも、どノリケーン	ョノをハ人ケートす トノ 両佐 乱正	る场古、必須じめる	۵。 +、ノ <i>ニ、ノ</i> ー・+	キップ ちまね
本 森 で は 、 Web 上 や ・ や ・ や ・ や ・ や ・ ・ や ・ ・ や ・ ・ や ・ ・ や ・ ・ や ・ ・ や ・ ・ や ・ ・ ・ ・ ・ ・ ・ ・	ナーダノアイルにめるナキストだけでな	よく、画像、動画、	い モナルなど禄々	なメテイドに対す	
技術、特徴重抽出技術	、火兀削減を含むインテクシング、テ	ーキストマイニング	、アータマイニング	、日然言語処理	^主 、「「報検索技
術、回帰・分類・クラスタ	リンクに代表される統計的機械学習	、リンク解析に代表	表される Web マイニ	ニンク技術、なら	のに深層学習
技術に焦点を当て、最新	所のデータサイエンス技術を講述する	0			
Day by day, a massive	amount of data has been generate	d, accumulated, a	and updated on the	Internet, wher	e data include
texts, images, sounds, n	novies, 2D/3D shapes, numeric value	s, and their comp	osites. Extracting ir	nportant pieces	of information
is crucial in many Clo	sed/Open Web applications. The ol	piectives of this	lecture is to demo	onstrate the st	ate-of-the art
technologies in data s	science ranging from data represe	entation. data mi	ning. text mining.	natural langua	ge processing.
information retrieval	information extraction machine l	earning (including	both unsupervis	ed and super	vised learning
with/without deep learn	ing frameworks) based on fundament	tal data science t	echnologies		viced learning
Contents of class			connologico.		
(1)けじめに(データ表現)	ままうたい しょう しんしょう しんしょ しんしょ				
(1)協じいに() ク扱ジ (2) 統計と其礎機械学習	12日日) グロナの本礎/ 1915年				
(2) 桂報 经责 (经责 新	112月 112月 - 12月 - 120 -				
(3) 11(() () () () () () () () () () () () ()	以に、言記て)ル、久儿削減、計画/ ノテ、ハリフイニングを含む Web フイニ	ヽ, <i>ਮ</i>			
(4) Web リンク解析とコン (5) 教師たけ 学羽(カニッ	インフィイニンクを含む Web マイニ ころいいが) 証価	<i></i>			
(5) 教師なし子白(ワノス)	(スカンク)、計1回 (八)(約) 証(再)				
(0) 教師のり子首(凹帰)	、プ笈)、評価 数抽点、検索、八粒、ディーペーー、	. <i>Н</i> 3 88			
(/)マルナメナイアの特性	戦曲山、快楽、分類、ナイーノフーーン	/ ク入口			
(8)					
(1) Introduction (Basics	or Data Science including Data Repr	resentation)			
(2) Statistics and Basic	Machine Learning Technologies	D			
(3) Information Retrieva	I (Search, Similarity, Language Model	, Dimensional Rec	luction, Evaluations))	
(4) Web Mining including	; Web Link Analysis and Content Mini	ing			
(5) Unsupervised Learni	ng (Clustering), Evaluations				
(6) Supervised Learning	(Regression, Classification), Evaluati	ons			
(7) Multimedia Feature I	Extraction, Search, Classification, and	d Introduction to I	Deep Learning		
(8) Final Exam					
Self Preparation and Re	view				
基本的なデータマイニン	・ グ技術(主成分分析・判別分析・回	帰分析、クラスタ	リング)に関しては、	各自、予習·復	習をしておくこ
と。特に、授業の補助用	Web ページで、Python (Jupyter no	tebook)を使った	自習教材を準備する	るので、慣れてお	ふくことが好まし
い。					
It is desirable to self-s	tudy as well as to review fundame	ntal data mining t	techniques such as	clustering, cla	ssification, and
regression. It should be	noted that the knowledge on mach	ine learning and i	nultivariate analysis	s techniques su	ch as principal
component analysis is a	a prerequisite to this class. It is rec	ommended install	ing Python into vou	ır computer. be	cause some of
the lecture materials are	e assumed the knowledge of Pvthon.		_ ,	,	31
Related subjects	···				
Notes for textbook					

Materials for this class	will be availlabl	e at http://www.kde.cs	s.tut.ac.jp/~aono	o/myLecture.html.			
Reference1	Reference 1 Book title Information Retrieval, Implementing and Evaluating					978-0-262- 02651-2	
	Author	Stefan Buttcher,	Publisher	MIT Press	Publish year	2010	
		Charles L.A.					
		Clarke, Gordon V. Cormack					
Reference2	Book title	Data Mining and Ana	alysis		ISBN	978-0-521-	
			1			76633-3	
	Author	Mohammed J.	Publisher	Cambridge	Publish year	2014	
		Jr.		Press			
Reference3	Book title	Data Mining Pract	ical Machine L	earning Tools and	ISBN	978-0-12-	
	Author	Ian H. Witten, Eibe	Publisher	Morgan	Publish vear	2011	
		Frank, and Mark A.		Kaufmann			
		Hall			10001	070.4	
Reference4	Book title	Python Machine Lea	arning		ISBN	978-1- 78355-513-	
	Authors		Datista	DAOKT	Dublish	0	
	Author	Sebastian Raschka	Publisher	PACKI	Publish year	2016	
出版社:Addison Wesley ISBN:978-0-321-41691-9 出版年:2011 参考書 6 書名「Google's PageRank and Beyond」 著者名:Amy N. Langville, Carl D. Meyer 出版社:Princeton University Press ISBN:978-0-691-12202-1 出版年:2006 Reference #5 Title:「Modern Information Retrieval, the concepts and technology behind search, Second Edition」 Authors:Ricardo Baeza-Yates, Bertier Ribeiro-Neto Publisher:Addison Wesley ISBN:978-0-321-41691-9 Year:2011							
Title: Google's Pagel	Rank and Beyon	dj					
Publisher : Princeton	University Pres	S					
ISBN:978-0-691-12 Year:2006	202–1						
Goals to be achieved							
 (1)データサイエンス・ (2)情報検索(自然言) (3)機械学習(分類、E (4)リンク解析、Web マ 	データマイニン? 語処理、文書検 団帰分析、クラス マイニング解析、	ブ(データ表現、主成分 索・メディア検索、類似 タリング)ならびに深層 時系列データ解析等の	・分析に代表され 度、ランキング) 学習の基礎技行)基礎技術が理	れる多変量解析)の基 ○の基礎技術が理解で 術が理解できること 解できること	礎技術が理解で きること	きること	
The following items ha	ve to be achieve	ed:					
1. Able to implement a	nd apply fundam	nental data science (mi	ining) technolog	ies.			
2. Able to understar	id fundamental	technologies of info	rmation retriev	al such as natural	language proce	essing, search	
3. Able to understand	basics of machi	ne learning (classificati	ous such as lan	suage model clustering) and deep I	earning		

4. Able to understand basics of Web link analysis, Wen content mining, Time series data mining
Evaluation of achievement
原則として、すべての授業に出席したものにつき、下記のように成績を評価する。
定期試験 80 点、課題 20 点の合計で評価する。
A: 80 占以上 B: 65 占以上 C: 55 占以上
In principle for those who have strended all the classes, the credit will be given as follows:
A: (>=80), B: (>=65), C: (>= 55)
Examination
Examination(Face to Face)
Details of examination
Other information
C-511、TEL: 6764, Email: aono@tut.jp
Masaki Aono (C-511) aono@tut.jp
Reference URL
http://www.kde.cs.tut.ac.ip/~aono/mvl.ecture.html
http://www.kdo.oc.tut.ac.ip/~acpo./mvl.ecture.html
Office hours
事前に aono@tut in 主で電子メールで予約をとること
It is recommended that prior email appointment is preferable
Relations to attainment objectives of learning and education
Key words
data and text mining information rational feature extraction machine learning deep learning

(M43630320)Bio-physic	cal Information	Systems 1[Bio-phys	sical Information S	Systems 1]		
Subject	Bio-physical	Information Systems	1[Bio-physical In	formation Systems	1]	
name[English]						
Schedule number	M43630320		Subject area	Advanced Computer	Required or elective	Elective
				Engineering		
Time of starting a	Spring1 term		Day of the week period	Mon.4~4	Credit(s)	1
Faculty	Graduate Pro	ogram for Master's De	egree	I	Subject	1~
Department Offered	Computer Sc	ience and Engineerin	g		grade Beggining grade	M1
Charge teacher	福村 直博 F	UKUMURA Naohiro			grade	
name[Roman						
alphabet mark]						
Numbering	CMP_MAS53	025				
Objectives of class						
巧みな運動を実現する	牛体の情報処	理メカニズムの理解の	のための計算論的	なアプローチの手渋	まを理解する。	
This course lectures o	n advanced st	udies on information	processing in th	e nervous systems	and computati	onal models for
motor controls of the h	uman moveme	nts	processing in th		and compatian	
Contents of class		1103.				
1 運動情報処理シフラ	テムのイントロタ	<i>゛</i> カシュン				
(運動目報処理ノス)	ふめアプローチ					
理動前仰、の前昇。	油的プラローチ フラノ 笠肉 ざ	雷 新 加 奴				
	ヘナム、肋内、1 乳生いのエ ディ	里到仲裕				
3-4. こ ト 肥 連 期 の 字 音	11前御モナル					
5-0. CP	い計画モナル					
 /. EPの把持運動モナ 	<i>ν</i>					
8. 定期試験						
1. Introduction to the c	omputational n	euroscience in the m	otor control syste	em		
2. Information processi	ng in the motor	r system of the brain				
3-4. Motor control mod	lels of the hum	an arm movements				
5-6. Models for motor p	planning in the	human arm movemer	nts			
7. Models for motor pla	nning in the hu	man hand movement	s			
8. Examination						
Self Preparation and R	eview					
講義資料を事前に Dre	am Campus IC	て公開するので、講家	毎当日までにダウン	ンロードしておくこと		
lecture material is disc	losed to Dream	n Campus system he	foreband		0	
Pelated subjects						
視覚認知科学特論(博	士前期)、シス ⁻	テム・知能科学特論(博士前期)			
Visual Perception and (Cognition, Adva	nced System and Kn	iowledge Scieces			
Notes for textbook						
講義資料を事前にDrea	am Campus に	て公開するので、講氰	も当日までにダウン	ンロードしておくこと	0	
Lecture material is disc	losed to Drear	n Campus system be	forehand, so you	should download it.		
Reference1	Book title	Human motor contr	rol		ISBN	0123742269
	Author	David A	Publisher	Academic	Publish	2010
		Rosenbaum			vear	
Notes for reference	I		1	1	, you.	1
<u></u>						
Goals to be achieved		= 0 + 1 + 0				
 1) 脳機能を明らかにす 	「るための計算	論的なアブローチの	+法を埋解する	Am 1 -		
2) ヒトの滑らかな運動	を実現する情報	服処理システムや学習	皆機能について理	解する		
1) Understand the met	thod of comput	ational approach to r	eveal brain functi	on		
2) Understand the info	ormation proces	ssing system and lear	ming function to a	ichieve a skillful mo	vement of the h	numan
Evaluation of achievem	ent					
レポート 50% 最終日(のプレゼンテー	ション 50% 左記の割	合で総合的に評(面する		
A:達成目標をすべて	達成しており、	かつテスト・レポートの)合計点(100 点満	崎点)が 80 点以上		
B:達成目標を〇%達	成しており、か	つテスト・レポートの台	合計点(100 点満点	点)が 65 点以上		
C:達成目標をO%達	成しており、か	つテスト・レポートの台	合計点(100 点満点	点)が 55 点以上		

Report 50% Final presentation 50%, A: 100–80, B: 79–65, C: 64–55, D (fail): 54–0 Students who attend all classes will be evaluated as follows: A: Achieved all goals and obtained total point of report and final presentation, 80 or higher (out of 100 points). B: Achieved 85 % of goals and obtained total point of report and final presentation, 65 or higher (out of 100 points).
C: Achieved 70 % of goals and obtained total point of report and final presentation, 55 or higher (out of 100 points).
Examination
レポートで実施
By Report
Details of examination
Other information
Reference URL
Office hours
Monday 16:20-17:50
Monday 16:20-17:50
Relations to attainment objectives of learning and education
Key words
こう いうこう しょう しょう ション

生体情報、運動情報処理、ニューラルネットワーク、計算論 Biological information, Motor Control System, Neural network, Computational theory

(M43630340)Statistical	Natural Language Processing[Statistical Natural Language Processing]

Subject name[English]	Statistical N	atural Language Pro	ocessing[Statistica	al Natural Language	Processing]				
Schedule number	M43630340		Subject area	Advanced	Required or	Elective			
			-	Computer	elective				
				Science and					
				Engineering					
Time of starting a	Spring1 term	ı	Day of the	Wed.3~3	Credit(s)	1			
Faculty	Graduate Pr	ogram for Master's	Degree		Subject	1~			
Descentes ant Officers d	0	grade							
Department Offered	Computer So	cience and Engineer	ring		Beggining grade	MI			
Charge teacher	秋葉 友良 А	AKIBA Tomoyoshi							
name[Roman alphabet									
mark]									
Numbering	CMP_MAS52	2525							
Objectives of class									
Important topics on stat	tistical natural	language processin	g will be discussed	d by focusing on sta	tistical machine	translation.			
Contents of class									
Week 1: Introduction									
Week 2: Basic of Proba	oility and Statis	stics							
Week 3: Language Mode	ls								
Week 4: Translation Mod	dels								
Week 5: Parameter Estin	mation								
Week 6: EM Algorithm									
Week 7: Advanced meth	ods in SMT								
Self Preneration and Re									
Related subjects									
Information theory, Form	nal language th	neory							
Notes for textbook									
Resumes will be provide	d, which are b	ased on:							
 Kevin Knight 									
A Statistical MT Tutoria	al Workbook								
•Seiichi Nakagawa et al.									
Spoken Language Proce	essing and Nati	ural Language Proc	essing						
Reference1	Book title	Statistical Machi	ine Translation		ISBN	978-			
						0521874151			
	Author	Philipp Koehn	Publisher	Cambridge	Publish vear	2010			
	/100101	1 mpp 100m		University	i ubiloir your	2010			
				Press					
Reference2	Book title	A Statistical MT	Tutorial Workbook	<pre> </pre>	ISBN				
	Author	Kevin Knight	Publisher		Publish year				
Notes for reference									
Goals to be achieved									
Basics: Understand the basic concepts of natural language processing									
Natural Language Processing: Understand the role of language resources, language and translation models, word alignments,									
and parameter estimation methods,									
Applications: Understand statistical machine translation system.									
Evaluation of achievement									
Marks are based on reports (100%).									
Evamination									
Examination									
Examination レポートで実施 By Depart									

Details of examination

Other information

Tomoyosi Akiba: C-505, 44-6758, akiba@cs.tut.ac.jp

Reference URL

http://www.cl.ics.tut.ac.jp/~akiba/

Office hours 16:25–17:40, Tuesday and Wednesday

Relations to attainment objectives of learning and education

Key words

spoken language processing, natural language processing, human language technology

(M44610020)Seminar on Environmental and Life Science II[Seminar on Environmental and Life Science II]

Subject name[English]	Seminar on Environmental and Life Science II[Seminar on Environmental and Life Science II]						
Schedule number	M44610020	Subject a	rea	Advanced	Required or	Required	
				Environmental	elective		
				and Life			
				Sciences			
Time of starting a course	Year	Day of	the	Intensive	Credit(s)	3	
Faculty	Graduate Program	n for Maste	ou r's Degr		Subject grade	2~	
Department Offered	Environmental an	d Life Scier	ices		Beggining	M1	
					grade		
Charge teacher name[Roman	S4系教務委員 4	kei kyomu I	n-S			·	
alphabet mark]							
Numbering	ENV_MAS65015						
Objectives of class							
Based on the Seminar on Enviro	nmental and Life S	cience I, th	is cours	e will further provide	e the students with	h the opportunity	
to study on his/her research sub	ject in environment	tal and life :	sciences	by reading textbook	s and papers unde	r the guidance of	
his/her supervisor. The student	s will learn the kn	owledge ar	d the p	resentation skills re	equired for his/her	research in the	
seminar.							
The students will be required to	waad taxthaalka awa		the second	athau languaga than		II. English which	
are suggested by his/her supervi	sor, and to report a	and discuss	deenly 4	other language than on his/her research	subject in the semi	nar.	
Self Preparation and Review			deepiy				
Related subjects							
Seminar on Environmental and Li	fe Science I						
Thesis Research on Environment	al and Life Science						
All other relevant subjects in Adv	vanced Environmen	tal and Life	Science	s			
Notes for textbook							
Supervisor will recommend textb	ooks, papers, and re	esearch ma [.]	terials to	o students.			
Notes for reference							
Goals to be achieved							
To acquire basic knowledge on e	nvironmental and lif	e sciences					
To understand the contents of s	cientific papers in a	given field	of envir	onmental and life sci	ences		
To be able to make oral and post	er presentations re	levant to p	apers he	/she has read.			
Evaluation of achievement							
The evaluation is based on the	scores of reading	textbooks a	ind scie	ntific papers, discus	sions, reports and	presentations of	
his/her research in the seminar.	His/her supervisor	evaluates t	he score	es.			
試験期間中には何も行わない							
None during exam period							
Other information							
Supervisor(s)							
Reference URL							
http://ens.tut.ac.jp/en/							
Office hours							
Students are encouraged visiting by appointment.							
Relations to attainment objective	es of learning and e	ducation					
1							
Key words							
Environmental science and techr	ology, life science.	materials so	cience a	nd engineering, appli	ed chemistry		

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

Subject name[English]	Special Topics in Applied Organic Chemistry[Special Topics in Applied Organic Chemistry]						
Schedule number	M44630100	Subject area	Advanced	Required or	Elective		
			Environmental	elective			
			and Life				
			Sciences				
Time of starting a course	Spring1 term	Day of the	Tue.5~5	Credit(s)	1		
Ecolution (Graduata Dramo	week,period		Subject and	1~		
Faculty Department Offered	Environmental	nn for Master's Degr	ee	SUDJECT grade	1~ M1		
Doparunont Unorod		IN LIFE OCIENCES		grade			
Charge teacher name[Roman	岩佐 精二,柴富	了一孝 IWASA Seiii.	SHIBATOMI Kazutal	(a			
alphabet mark]							
Numbering	ENV_MAS52225						
Objectives of class							
To provide you with a working kn	owledge of advanc	ed synthesis of mol	ecular materials.				
Contents of class							
This course includes the detail of	of the most recent	progress in moderr	synthetic applicatio	on of catalysis, org	anometallics, and		
the total synthesis of natural pro	ducts on the basis	of retrosynthetic a	nalysis.				
1. Total synthesis of bioactive or	ganic compounds.	(Iwasa)					
2. Advanced modern synthetic or	ganic reactions us	ing transition metals	. (Iwasa)				
3. Basic concept of oxidative add	lition and reductive	e elimination in catal	ytic cycles. (Iwasa)				
4. Synthetic applications of asym	metric synthesis a	and asymmetric cata	lysts. (Iwasa)				
5. Basic concept of Lewis acid ca	atalyst and organo	catalyst. (Shibatomi)					
6. Advanced Lewis acid catalysis	in organic synthe	sıs. (Shibatomi)					
7. Advanced organocatalysis in o	rganıc synthesis. (Shibatomi)					
δ. Urganofluorine chemistry. (Shi	batomi)						
Self Preparation and Review							
Related subjects							
Subjects related to Organic Cher	nistry						
Notes for textbook							
No textbook is required.		1 1 10 11					
Some of information in WebCT w	III be help for your	understanding on th	is course.				
Natao fau w-f							
NOTES TOR RETERENCE							
Coole to be activue d							
A firm understanding on art-hud	t otoroochamista	reaction mechanis	m and their englist	tion for the auth	opio of malagular		
materials is achieved	, stereocriemistry	, reaction mechanis	sin, and their applica	the synthe	esis or morecular		
Fvaluation of achievement							
The report on papers from scient	ific journals such	as JACS and Ange	w Chem will be impo	osed			
A design of novel organic molecul	lar material						
Evaluation basis] Students who a	ittend all classes v	vill be evaluated as f	ollows:				
S: Achieved all goals and obtaine	d total points of e	xam and reports, 90	or higher (out of 100	points).			
A: Achieved 80 $\overset{-}{\scriptscriptstyle \%}$ goals and obtain	ned total points of	exam and reports, 8	0 or higher (out of 1	00 points).			
B: Achieved 70 % of goals and ob	tained total points	of exam and reports	s, 70 or higher (out o	f 100 points).			
C: Achieved 60 % of goals and ob	tained total points	of exam and report	s, 60 or higher (out o	f 100 points).			
Examination							
レポートで実施							
By Report							
Details of examination							
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

Key words

molecular catalyst, total synthesis, natural product, asymmetric synthesis, transition metal

(M44630110)Developmental Neuroscience[Developmental Neuroscience]

Subject name[English]	Developmental Ne	euroscience[Develo	omental Neurosciend	el	
Schedule number	M44630110	Subject area	Advanced	Required or	Elective
			Environmental	elective	
			and Life		
			Sciences		
Time of starting a course	Spring2 term	Day of the	Tue.2~2	Credit(s)	1
		week,period			
Faculty	Graduate Progran	n for Master's Degr	ee	Subject grade	1~
Department Offered	Environmental and	d Life Sciences		Beggining	M1
				grade	
Charge teacher name[Roman	吉田 祥子,沼野	利佳 YOSHIDA Sa	ichiko, NUMANO Rik	а	
alphabet mark]					
Numbering	ENV_MAS53225				
Objectives of class					
Objective of class is to develop	a new technology	for detection of i	neuronal function in	your brain. We de	eal with neuronal
property and development of neu	ronal circuit, and di	scuss applicability a	and problem of your	ideas.	
Contents of class					
S Yoshida,					
(1)Properties of neuronal cells					
(2)Electrical function and ion tran	isport				
(3)Chemical information transport	t				
(4)Development of neuronal circu	iit				
(5)Detection of chemical information	tion				
(6)Detection of electrical informa	tion				
(7)Detection of cortical developm	ient				
R Numano,					
We pick up topics from chapter2	in Neuron To Brain	4th Ed.			
(8)Neural inducer in vertebrates					
(9)Notch and Delta genes					
(10)Notch and Delta genes					
(11)Polarity and Segmentation					
(12)Polarity and Segmentation					
(13)Hox gene function in the nerv	ous system				
(14)Hox gene function in the nerv	ous system				
(15)Topic & Discussion					
Self Preparation and Review					
Related subjects					
A firm understanding on fundame	ntal biochemistry a	nd thermodynamics	will be necessary.		
Notes for textbook					
Web-based text will be distribute	d.				
(Reference)					
From Neuron To Brain 4th Ed. Ni	cholls et. al. (Sinau	er. 2001)			
Notes for reference					
Goals to be achieved					
Evaluation of achievement					
Yoshida S.					
S: Achieved all goals and obtaine	d points of reports	and discussions, 90	or higher (out of 10	U points).	
A: Achieved several goals and ob	tained points of rep	orts and discussion	is, 80 or higher (out	of 100 points).	
B: Achieved two goals and obtain	ed points of report	s and discussions, 7	0 or higher (out of 1	00 points).	
U: Achieved one goal and obtaine	a points of reports	and discussions, 60	or higher (out of 10	iu points).	
Numano					
Term report; 100%					

Examination
その他
Other
Details of examination
Other information
S Yoshida
Room: B-406, E-mail:syoshida@ens.tut.ac.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
Key words

(M44630140)Advanced Electrical and Electronic Technology for Ecological Engineering[Advanced Electrical and Electronic Technology for Ecological Engineering]

Subject name[English]	Auvanceu Li			-		
	Electronic Te	echnology for Ec	ological Engineering]	I	
Schedule number	M44630140		Subject area	Advanced	Required or	Elective
				Environmental and	elective	
Time of starting a course	Spring1 term		Day of the week,period	Fri.4~4	Credit(s)	1
Faculty	Graduate Program for Master's Degree			Subject grade	1~	
Department Offered	Environmental and Life Sciences			Beggining grade	M1	
Charge teacher	田中三郎、	有吉 誠一郎 TA	NAKA Saburo, ARIY	OSHI Seiichiro	•	
name[Roman alphabet						
mark]						
Numbering	ENV_MAS542	225				
Objectives of class						
This course will provide	the students	with the opportu	nity to study on hi	s/her research subjec	t in Electromag	netism and its
relation with environmen	tal technology	by reading texts	oooks. The students	will learn the knowled	dge and the pre	sentation skills
required for his/her rese	arch in the ser	ninar.				
Contents of class						
The students will be ex	pected to read	d textbooks and	papers written in I	English, and report an	d discuss deep	y on research
subject in the seminar.						
Schedule of the week						
1. Introduction of Sensor	•					
2. Classification of Sense	or					
3. Sensor Technology						
4. Basic Fabrication Proc	cess I					
5. Basic Fabrication Proc	cess II					
6–15. Oral presentation a	and discussion	by students				
16. Exam.	-					
Self Preparation and Re	view					
Related subjects						
Electromagnetism						
Notes for textbook						
to be handed out	D. J. All.	Construction				
Reference	BOOK TITIO	Semiconducto	r Sensors		1281	15BN U-
						471-54009- 7
						,
	Author	S M Sze	Publisher	Wiley -	Publish vear	1994
	Author	S. M. Sze	Publisher	Wiley - Interscience	Publish year	1994
	Author	S. M. Sze	Publisher	Wiley – Interscience Publication	Publish year	1994
Notes for reference	Author	S. M. Sze	Publisher	Wiley – Interscience Publication	Publish year	1994
Notes for reference	Author	S. M. Sze	Publisher	Wiley – Interscience Publication	Publish year	1994
Notes for reference Goals to be achieved	Author	S. M. Sze	Publisher	Wiley – Interscience Publication	Publish year	1994
Notes for reference Goals to be achieved Understanding of the fur	Author	S. M. Sze	Publisher anufacturing process	Wiley – Interscience Publication	Publish year	1994
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme	Author damental of a	S. M. Sze	Publisher anufacturing proces	Wiley – Interscience Publication	Publish year	1994
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based	Author Idamental of a nt d on the scor	S. M. Sze	Publisher anufacturing proces	Wiley – Interscience Publication s.	Publish year	1994
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination.	Author Indamental of a Int d on the scor	S. M. Sze	Publisher anufacturing proces	Wiley – Interscience Publication s. s.	Publish year	1994 ninar and final
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination. Examination	Author Idamental of a nt d on the scor	S. M. Sze	Publisher anufacturing proces extbook, discussion	Wiley – Interscience Publication s. s.	Publish year	1994 ninar and final
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination. Examination 定期試験を実施(対面)	Author Idamental of a nt d on the scor	S. M. Sze	Publisher anufacturing proces extbook, discussion	Wiley – Interscience Publication s. s. s, reports, presentati	Publish year	1994 ninar and final
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination. Examination 定期試験を実施(対面) Examination(Face to Face	Author Idamental of a nt d on the scor	S. M. Sze	Publisher anufacturing proces extbook, discussion	Wiley – Interscience Publication s. s. s, reports, presentati	Publish year	1994 ninar and final
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination. Examination 定期試験を実施(対面) Examination(Face to Face Details of examination	Author Idamental of a nt d on the scor	S. M. Sze	Publisher anufacturing proces extbook, discussion	Wiley – Interscience Publication s. s. s, reports, presentati	Publish year	1994
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination. Examination 定期試験を実施(対面) Examination(Face to Face Details of examination The exam is written in E	Author Idamental of a nt d on the scor	S. M. Sze	Publisher anufacturing proces extbook, discussion	Wiley – Interscience Publication s. s. s, reports, presentati	Publish year	1994
Notes for reference Goals to be achieved Understanding of the fur Evaluation of achieveme The evaluation is based examination. Examination 定期試験を実施(対面) Examination(Face to Face Details of examination The exam is written in E Other information	Author Idamental of a nt d on the scor re)	S. M. Sze	Publisher anufacturing proces extbook, discussion	Wiley – Interscience Publication s. s. s, reports, presentati	Publish year	1994

Room G605, ext6916, e-mail: tanakas@ens.tut.ac.jp
Reference URL
http://ens.tut.ac.jp/squid/
Office hours
Anytime, but appointment on ahead is required by e-mail.
Relations to attainment objectives of learning and education
Key words
(M44630180)Advanced Reaction Engineering[Advanced Reaction Engineering]

Subject neme[English]			یران م ا	maad Departien Engin		
	Advanced Reaction		SLAdva	Advert and		Elective
Schednie under	10144030180	Subject are	a	Advanced Environment-L	required or	Elective
				Environmental	elective	
				Solonooc		
Time of starting a course	Spring1 term	Day of	the	Thu 2~2	Credit(e)	1
	opring r term	week period	l		Of Builds/	•
Faculty	Graduate Program	n for Master's	Degre	e	Subject grade	1~
Department Offered	Environmental an	d Life Science	es		Beggining	M1
					grade	
Charge teacher name[Roman	小口 達夫 OGUC	CHI Tatsuo				1
alphabet mark]						
Numbering	ENV_MAS52225					
Objectives of class						
This course will provide student	ts with the opport	unity to unde	rstanc	I the basic reaction	kinetics and dyna	mics. Especially,
experimental and theoretical trea	atment of reaction	rate constant	ts will	be given. Some rea	ction mechanisms	in combustion or
atmosphere will be also discusse	d.					
This course will provide student	ts with the opport	unity to unde	rstanc	I the basic reaction	kinetics and dyna	amics. Especially,
experimental and theoretical trea	atment of reaction	rate constant	ts will	be given. Some rea	ction mechanisms	in combustion or
atmosphere will be also discusse	d.					
Contents of class						
1. Introduction.						
2. Chemical reaction and rate the	eory.					
3. Reaction mechanism.						
4. Thermodynamics of reaction.						
5. Reaction rate theory. (1)						
6. Reaction rate theory. (2)						
7. Summary						
1. Introduction.						
2. Chemical reaction and rate the	eory.					
3. Reaction mechanism.						
4. Thermodynamics of reaction.						
5. Reaction rate theory. (1)						
6. Reaction rate theory. (2)						
7. Summary						
Self Preparation and Review						
Related subjects						
Notes for textbook						
(Textbook is not used.)						
(Textbook is not used.)						
Notes for reference						
(Reference book)						
Paul L. Houston, "Chemical Kinet	tics and Reaction D)ynamics″, Mc	Graw	till.		
(A study–aid book)						
Steingfeld, Francisco, and Hase,	"Chemical Kinetics	and Dynamics	s", Pre	entice-hall, 1989.		
(Reference book)						
Paul L. Houston, "Chemical Kine	tics and Reaction D)ynamics", Mc	Grawl	Hill.		
(A study-aid book)						
Steingfeld, Francisco, and Hase,	Chemical Kinetics	and Dynamics	s", Pre	entice-hall, 1989.		
Goals to be achieved						
Understanding reaction rate theo	ry, reaction mecha	nisms.				
Understanding reaction rate theo	ry, reaction mecha	nisms.				

Evaluation of achievement

Grades for the course will be based on the reports. Grades for the course will be based on the reports.

Examination

レポートで実施 By Report

Details of examination

Other information

Reference URL

Office hours

Any time, but e-mail is required in advance. Any time, but e-mail is required in advance.

Relations to attainment objectives of learning and education

Physical chemistry and thermodynamics.

Physical chemistry and thermodynamics.

Key words

Reaction, Rate Theory, Transition State Theory, Lindemann Mechanism. Reaction, Rate Theory, Transition State Theory, Lindemann Mechanism.

(M44630220)Advanced Life Science and Biotechnology II[Advanced Life Science and Biotechnology II]	
6y -2	

Subject name[English]	Advanced Life Sc	ience and Bio	techn	ology II[Advanced Li	fe Science and Bio	technology II]
Schedule number	M44630220 Subject area Advanced			Advanced	Required or	Elective
		j	-	Environmental	elective	
				and Life		
				Sciences		
Time of starting a course	Spring term	Dav of	the	Intensive	Credit(s)	2
	oping com	week period	I			-
Faculty	Graduate Program	for Master's	Degr	ee	Subject grade	1~
Department Offered	Environmental and	d Life Science			Beggining	М1
					grade	
Charge teacher name[Roman	S4系教務委員 4	kei kvomu Iin-	-S		8.000	
alphabet mark]		···· , ····				
Numbering	ENV MAS53225					
Objectives of class	_					
This source will provide the stur	lente with the one	vrtupity to ct	idv or	the celected cubic	ot in the realm of :	further advanced
life science and biotechnology ba	rents with the oppo	re of the cou	irse of	Advanced Life Scie	nce and Biotechnol	
Contents of class	Sed on the knowled		130 01	Advanced Life Ocie		logy I.
The electron will be given by his /	har aunamiaar. Tha	turna and aan	tonto	of this course depen	d an hia/har aunar	vicor
Self Dreparation and Deview		cype and con	CONTR	or ans course deper	ia on his/her super	visul.
Con Freparauon and Review						
Related subjects						
Advanced Life Science and Biote	chnology I					
Notes for textbook						
Notes for reference						
Goals to be sobieved						
Evaluation of achievement						
成績は指導教員が総合的に判断	する。	· · - • - ·				
A:達成目標をすべて達成してお	ふり, かつテスト・レオ	ペートの合計点	ā (100	(点満点)が 80 点以	F	
B:達成目標を 65%達成しており	,かつテスト・レポー	-トの合計点(100 点	(満点)が 65 点以上		
C:達成目標を55%達成しており	,かつテスト・レポー	-トの合計点(100 点	(満点)が 55 点以上		
His/her supervisor evaluates the	scores.					
A: 80 or higher (out of 100 points	s), B: 65 or higher (c	out of 100 poi	nts) C	: 55 or higher (out of	f 100 points)	
Examination						
試験期間中には何も行わない						
None during exam period						
Details of examination						
Oth an information						
Reference URL						
Office hours						
Students are encouraged visiting	by appointment.					
Relations to attainment objective	es of learning and e	ducation				
1						
Key words						
Molecular biology and microbiolog	zy, genomics, biotec	hnology and l	bioeng	ineering		

(M44630240)Advanced Environmental Technology II[Advanced Environmental Technology II]

Subject name[English]	Advanced Environmental Technology II[Advanced Environmental Technology II]					
Schedule number	M44630240	Subject	area	Advanced	Required or	Elective
				Environmental	elective	
				and Life		
				Sciences		
Time of starting a course	Spring term	Day o	f the	Intensive	Credit(s)	2
		week,per	riod			
Faculty	Graduate Progran	n for Maste	er's Degr	ee	Subject grade	1~
Department Offered	Environmental an	d Life Scie	nces		Beggining	M1
Ohanna haadaan mara Damaa	04 亚		En C		grade	
Charge teacher name_Roman	34术软伤安良 4	kei kyömu	1m-2			
	ENIV MAS54225					
This source will provide the stur		a unha una linha a da ma	ماسط م	the colorated cubic	at in the veelor of	funther of concert
environmental technology based	on the knowledge o	of the cours	scuuy or	anced Environmenta		lurther advanced
Contents of class					in reenhology I.	
The classes will be given by his/	her supervisor. The	type and o	contents	of this course deper	nd on his/her super	visor
Self Preparation and Review		-, , , , , , , , , , , , , , , , , , ,	5			
Related subjects						
Advanced Environmental Techno	lom/ I					
Notes for textbook	logy I					
Notes for a former of						
Notes for reference						
Goals to be achieved						
Evaluation of achievement						
成績は指導教員が総合的に判断	iする。					
A:達成目標をすべて達成してお	sり, かつテスト・レ 7	ポートの合う	計点(100) 点満点)が 80 点以.	F	
B:達成目標を 65%達成しており	, かつテスト・レポー	-トの合計,	点(100 点	(満点)が 65 点以上		
C:達成目標を55%達成しており	,かつテスト・レポー	-トの合計;	点(100 点	(満点)が 55 点以上		
His/her supervisor evaluates the	scores.					
A: 80 or higher (out of 100 points	s), B: 65 or higher (d	out of 100	points) C	: 55 or higher (out of	f 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						
Office hours						
Students are encouraged visiting	by appointment.					
Relations to attainment objective	es of learning and e	ducation				
Kana ana ana						
Ney Words						

(M44630260)Advanced Environmental and Ecological Systems II[Advanced Environmental and Ecological Systems II]

Subject name[English]	Advanced Envir	onmental and Ecolog	ical Systems II[Adva	nced Environment	al and Ecologic
	Systems II]	-			Ū
Schedule number	M44630260	Subject area	Advanced Environmental and Life Sciences	Required or elective	Elective
Time of starting a course	Spring term	Day of the week,period	Intensive	Credit(s)	2
Faculty	Graduate Progra	am for Master's Degre	e	Subject grade	1~
Department Offered	Environmental a	nd Life Sciences		Beggining	M1
				grade	
Charge teacher name[Roman	S4系教務委員	4kei kyomu Iin−S			
alphabet mark					
Numbering	EINV_IVIAS54125				
Descrives of class	lente with the co	portunity to study	the selected out	ot in the realm of	further advara
environmental and ecological and	ents with the op	the knowledge of the	the course of Advo	ced Environment	and Ecoloria
Sivironmental and ecological sy Systems I	stems based on	the knowledge of t	ne course of Advar	iceu Environmenta	a anu Ecologio
Contents of class					
The classes will be given by his/k	ner supervisor. Th	e type and contents	of this course depen	d on his/her super	visor.
Self Preparation and Review		e type and contoints			
• • • • • • • • • • • • • • • • • • • •					
Related subjects					
Advanced Environmental and Eco	ological Systems I				
Notes for textbook					
Notes for reference					
Goals to be achieved					
Evolution of achievement					
ctaluation of achievement 成績けた道教昌が総合的に判断	+ Z				
八根は相等教員が応ロ的に判断 Δ·達成日標をすべて達成してま	「9 る。 ミリ かつテスト・L	ポートの会計占(100	占法占)が 80 占い	F	
B.達成日標を 65%達成しており	かつテスト・レポ	(小 100日前点(100 (二) 一)	点両点)が65 点以上	-	
C:達成目標を55%達成しており	, かつテスト・レポ	- トの合計点(100 点	満点)が 55 点以上		
	,				
His/her supervisor evaluates the	scores				
A: 80 or higher (out of 100 points	b. B: 65 or higher	(out of 100 points) C	55 or higher (out of	100 points)	
	,, <u>_</u> , <u>_</u> , <u>,</u> , <u>,</u> , <u>,</u> , <u>,</u> , <u>,</u> , <u>,</u>				
Fxamination					
試験期間中には何も行わない					
None during exam period					
Details of examination					
Details of examination					
Other information					
Other information Supervisor					
Other information Supervisor Reference URL					
Other information Supervisor Reference URL					
Other information Other information Supervisor Reference URL Office hours					
Other information Supervisor Reference URL Office hours Students are encouraged visiting	by appointment.				
Other information Supervisor Reference URL Office hours Students are encouraged visiting Relations to attainment objective	by appointment. ss of learning and	education			
Other information Supervisor Reference URL Office hours Students are encouraged visiting Relations to attainment objective	by appointment. as of learning and	education			
Other information Other information Supervisor Reference URL Office hours Students are encouraged visiting Relations to attainment objective	by appointment. as of learning and	education			
Other information Other information Supervisor Reference URL Office hours Students are encouraged visiting Relations to attainment objective	by appointment. as of learning and	education			
Other information Other information Supervisor Reference URL Office hours Students are encouraged visiting Relations to attainment objective	by appointment. ss of learning and	education			

 (M44630280)X-ray Spectroscopy for Catalytic Engineering[X-ray Spectroscopy for Catalytic Engineering]

Subject nome[English]	V-roy Spectrose	any for Cotal	utio En	ringering[V_rov Spo	strangeny for Coto	lutia Enginaaring]
		opy for Catal	yuc En	gineering_A-ray Spec	ctroscopy for Gata	
Schedule number	M44630280	Subject an	ea	Advanced	Required or	Elective
				Environmental	elective	
				and Life		
		-		Sciences	• • • • • •	
Time of starting a course	Spring2 term	Day of	the .	Tue.3~3	Credit(s)	1
E	Our durate Durane	week,perio			0	1
	Graduate Program	m for Master	s Degr	ee	Subject grade	~
Department Offered	Environmental an	id Life Science	es		Deggining	
Charma tasahar nama[Daman	水嵢 歨知 MI7U		ori		grade	
Charge teacher name_Roman	小响 土首 MIZU		IOTI			
	ENV MAS52225					
Objectives of class 田休姉城の八七千の云ちて V&	自同长头 又纳吸收	/坐///		も坐 ∨ 始けなの ∨ 始	シンンサポーキュ	なかせる羽谷士で
	彩凹灯法、X 称吸收	(11)1111111111111111111111111111111111	4F5), <u>i</u>	13.11.11.11.11.11.11.11.11.11.11.11.11.1	『方元技術に関9る	
To gain knowledge of X-ray spec	ctroscopic techniqu	les including	x-ray	diffraction, X-ray ab	sorption fine struc	ture (XAFS), and
fluorescent X-ray spectroscopy	as analytical tools i	for solid cata	lysts.			
Contents of class						
(1) X 線分光の基礎	-					
(2) X 線回折法の原理、測定、応	用					
(3) X 線回折法の実習						
(4) XAFS の原理、測定、解析						
(5) 触媒特性化における XAFS の)応用					
(6) 特殊な XAFS 測定技術とその)応用					
(7) 蛍光 X 線分光の原理、測定、	応用					
(1) Fundamentals of X-ray and it	s spectroscopy					
(2) Principle, measurement, and a	application of X-ray	diffraction				
(3) Experimental practice of X-ra	y diffraction					
(4) Principle, measurement, and a	analysis of XAFS					
(5) Application of XAFS to cataly	st characterization	1				
(6) Advanced XAFS techniques a	nd their application	าร				
(7) Principle, measurement, and a	application of fluore	scent X-ray	spectr	oscopy		
Self Preparation and Review		· · ·	•			
Related subjects						
物理化学なとび無機化学の其礎	的知識を有するこ	レが望ましい				
初生化于6350 宗(版化于6) 圣徒			chamic	tn		
Notes for textbook	lieuge of physical a		CHEIIIIS	su y.		
	ロケナス					
教科者は使用しない。フリンドを目	L11 9 の。					
参考又献						
Y.Iwasawa et al., "X-ray absorpti	on fine structure fo	or catalysts a	nd surf	aces", World Scienti	fic	
No textbook is required. A printe	d synopsis of the c	lass will be g	iven.			
(Reference)						
Y.Iwasawa et al., "X-ray absorpti	on fine structure fo	or catalysts a	nd surf	aces", World Scienti	fic	
Notes for reference						
Goals to be achieved						
(1) X 線分光の其礎な理解すて						
(1) へ 隊 1 ル 9 本 1 定 2 生 件 9 る。	(線同垢法 ⊻∧∽∽	坐≁ ∨ 約/	<u>、 少 大 エ ち ゴ</u>	田邸する		
(2)回冲照烁の万机士权である)	、weintra、XAFS、	、虫兀ㅅ称2	リルをち	E/JFY る。		
(1) Understanding of basics of X-	-ray spectroscopy					
(2) Understanding of X-ray diffra	ction, XAFS, and fl	uorescent X-	ray spe	ectroscopy as analyt	ical tools for solid	catalysts.
Evaluation of achievement						
レポート 100%						
Reports 100%						

Examination レポートで実施

By Report

Details of examination

Other information

水嶋 生智, room : B-303, e-mail: mizushima@ens.tut.ac.jp Takanori Mizushima, room : B-303, e-mail: mizushima@ens.tut.ac.jp **Reference URL**

Office hours

随時

Anytime

Relations to attainment objectives of learning and education

Key words

X 線分光, X 線回折法, XAFS, 蛍光 X 線分光, 固体触媒 X-ray spectroscopy, X-ray diffraction, XAFS, Fluorescent X-ray spectroscopy, Solid catalysts

(M44630290)Advanced Biomaterials Engineering[Advanced Biomaterials Engineering]

Subject	Advanced Bi	iomaterials Engineer	ing[Advanced Bio	materials Engineering]			
nametengiisnj Sobedule number	M44630290		Subject area	Advanced	Pequired or	Flootive		
	10177000200			Environmental	elective	LICCLIVE		
				and Life Sciences				
Time of starting a course	Spring2 term	1	Day of the week,period	Thu.3~3	Credit(s)	1		
Faculty	Graduate Pr	ogram for Master's I	Degree		Subject grade	1~		
Department Offered	Environment	al and Life Sciences	3		Beggining grade	M1		
Charge teacher	辻 秀人,手	老 龍吾 TSUJI Hide	eto, TERO Ryugo					
name[Roman								
alphabet mark]								
Numbering	ENV_MAS52	225						
Objectives of class								
Biomaterials have bee	n developed	and studied in terr	ns of various ap	plications including	biomedical, pha	rmaceutical and		
environmental applicat	ions. This cou	irse covers the fun	damentals and a	pplications of biomat	erials and relat	ed experimental		
techniques.								
Contents of class		.						
This course deals with	all aspects of	f biobased and biode	egradable polyme	rs for biomedical, pha	armaceutical, ar	nd environmental		
applications, and of de	evices and te	chniques for sensin	g biomolecules.	The detailed course	schedule is sh	own below. The		
detailed course schedu	ile is shown be	low.						
Biobased and biodegrad	dable polymers	(Hideto Tsuji):			<i>.</i>			
(1) introduction, synthe	esis, and struc	tures, (2) molding,	crystallization, ar	nd physical properties	s, (3) hydrolytic	degradation and		
biodegradation, and (4)	applications.							
Biodevice and biosensi	ng (Ryugo Tero	o):						
(5) introduction of biom	naterials and b	iodevices, (6) detect	tion of cell memb	rane functions, (7) su	rface patterning	g and microarray,		
and (8) imaging techniq	ues for biomol	ecules.						
Self Preparation and R	eview							
If possible, read the re	eterence book	chapters which are	shown below an	d you can find them	in the universit	y library (Hideto		
Isuji). Desidatione surveysitations			#2) - L	V				
Read the appropriate o	napter(s) of th	ne reference book (a	#3) shown below.	rou can access it in	the university	network. (Ryugo		
Peleted subjects								
Neialed subjects								
N								
Notes for textbook								
Printed materials will be Drinted materials will be	e distributed (I	HIDETO I SUJI).	Toro					
Reference1		Degradation of C	Poly (Lastida)-P	asad Biodogradable	ISBN	1604565020		
	DOON UND	Materials	Uny (Lactive)-Do	assa biouegi auable		100-1000020		
	Author	Hideto Tsuii	Publisher	Nova Science	Publish	2008		
	, luuloi	Thuết Tough		Pub Inc	vear	2000		
Reference2	Book title	Chapter 21 ir	n "Poly(lactic	acid): Svnthesis.	ISBN	0470293667		
		Structures, Prope	rties, Processing	and Applications"				
	Author	Hideto Tsuji	Publisher	Wiley	Publish	2010		
		_			year			
Reference3	Book title	Nanoscience: Nan	obiotechnology a	nd Nanobiology	ISBN	978-3-540-		
						88633-4		
	Author	Patrick	Publisher	Springer	Publish	2009		
		Boisseau & year						
		Marcel Lahmani						
Notes for reference								
Reference book 3 (Ryu	go Tero):							
http://link.springer.com	n/book/10.100	7%2F978-3-642-280)30–6					
Goals to be achieved								

To understand the fundamentals and applications of biobased and biodegradable polymers (Hideto Tsuii).
To understand the fundamentals and applications of biodevice, biosensing and related methods (Ryugo Tero).
Evaluation of achievement
Presentation (100%) regarding the biobased and biodegradable polymers (Hideto Tsuji)
Reporting assignment (100%) which will be given in each class (Ryugo Tero)
[Evaluation basis] Students who attend all classes will be evaluated as follows:
S: Achieved all goals and obtained total points of presentation or reports, 90 or higher (out of 100 points).
A: Achieved 80 % of goals and obtained total points of presentation or reports, 80 or higher (out of 100 points).
B: Achieved 70 % of goals and obtained total points of presentation or reports, 70 or higher (out of 100 points).
C: Achieved 60 % of goals and obtained total points of presentation or reports, 60 or higher (out of 100 points).
Examination
その他
Other
Details of examination
Presentation (Hideto Tsuji)
Reporting assignment (Ryugo Tero)
Other information
Room (G-606), e-mail (tsuji@ens.tut.ac.jp), phone: 6922 (Hideto Tsuji)
Room (B-405), e-mail (tero@tut.jp), phone: 6791 (Ryugo Tero)
Reference URL
Office hours
Immediately after the class (Hideto Tsuji)
After the class, or as needed in my office (Ryugo Tero)
Relations to attainment objectives of learning and education
(C)理論的・応用的知識の獲得と発展的活用能力
重要な学術・技術分野の理論・応用知識を自発的に獲得し、発展的に活用できる能力
Key words

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

Subject name[English]	Seminar on Ar	rchitecture and Civ	I Engineering ISe	eminar on Archite	ecture and Civil
	Engineering I		n		a
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
	1 Gui	week period			Ũ
Faculty	Graduata Progra	m for Master's Degr		Subject grade	1~
Paculty Department Offered			56	Beggining	N/1
Department Offered	Architecture and	a Givii Engineering		Deggining	
	0月5北水千日			grade	
Charge teacher name_Roman	S5糸教務委員	5kei kyomu lin-S			
alphabet mark]					
Numbering	ARC_MAS51025				
Objectives of class					
All the students are required to	attend all the ser	ninars. which is arrar	nged by the laborate	orv supervisor for	the special study
subjects related to the current r	esearch activity of	the laboratory. The	scheduled program	of the seminars is :	announced by the
supervisor at the guidance of the	seminar	cho laboratory. The			
Contento of alego	Seminar.				
Contents of class					
Self Preparation and Review					
Palatad aubiaata					
Notes for textbook					
Notos for reference					
Goals to be achieved					
Evolution of aphievement					
Report					
Examination					
その他					
Other					
Details of examination					
Out an information					
Other Information					
Reference URL					
Office hours					
Relations to attainment objective	s of learning and	education			
Key words					

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

Subject name[English]	Seminar on Ar	chitecture and Civ	il Engineering II[So	eminar on Archit	ecture and Civil
	Engineering II]				
Schedule number	M45610020	Subject area	Advanced	Required or	Required
			Architecture	elective	
			and Civil		
			Engineering		
The fate the	X	Due of the	Engineering	0	0
lime of starting a course	Year	Day of the	Intensive	Gredit(s)	3
		week,period			-
Faculty	Graduate Progra	m for Master's Degre	ee	Subject grade	2~
Department Offered	Architecture and	d Civil Engineering		Beggining	M1
Charge teacher name[Roman	S5系教務委員	5kei kvomu lin-S		8.440	
onargo teacher name_roman	00米我初安員、				
Numbering	ARC_WASJ102J				
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	announced by the
supervisor at the guidance of the	seminar.				
Contents of class					
0 KD ID .					
Self Preparation and Review					
Related subjects					
-					
Notes for textbook					
Notes for reference					
Goals to be achieved					
Evaluation of achievement					
Report					
Examination					
その他					
での 他					
Other					
Details of examination					
Other information					
D.C. IDI					
Reference URL					
Office hours					
Deletione to etteinment altration		- durantian			
Relations to attainment objective	s or learning and	education			
Key words					

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

Subject name[English]	Thesis Researc	n on Architecture and	Civil Engineering	hesis Research or	Architecture and		
	Civil Engineering]						
Schedule number	M45610030	Subject area	Advanced	Required or	Required		
			Architecture	elective			
			and Civil				
			Engineering				
Time of starting a course	2Years	Day of the week,period	Intensive	Credit(s)	6		
Faculty	Graduate Progra	am for Master's Degre	e	Subject grade	1~2		
Department Offered	Architecture an	d Civil Engineering		Beggining grade	M2		
Charge teacher name[Roman alphabet mark]	S5系教務委員	5kei kyomu Iin-S					
Numbering	ARC_MAS51025	i					
Objectives of class	-						
This thesis research on architect	ure and civil engi	neering is designated	to deepen the know	wledge and enhand	e the skills of the		
students in their research fields t	hrough the self-c	riented endeavour wi	th the instruction of	f his/her superviso	or(s).		
Contents of class							
The subjects and the contents o	of the thesis vary	depending on the la	boratory. All studer	nts must present	their thesis at the		
end of the course and take a fin	al examination or	n the thesis, as a req	uirement for the gr	aduation of the m	aster course. The		
study for the thesis is planned an	d conducted und	er the guidance of the	e supervisor(s).				
Self Preparation and Review							
Related subjects							
TBD 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	S.			
Examination							
その他							
By Report							
Details of examination							
Other information							
Refer to administration office.							
Refer to the URL of each laborate	ory						
Defer to administration office							
Refer to administration office.	o of looming and	a dua attan					
relations to attainment objective	is of learning and	euucation					
1							
Key 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	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	e	Subject grade	1~1
Department Offered	Architecture and	Civil Engineering		Beggining grade	M1, M2
Charge teacher name[Roman alphabet mark]	S5系教務委員,	5系各教員 5kei kyoi	mu Iin−S, 5kei kakuk	youin	
Numbering	ARC_MAS51025				
Objectives of class					
This thesis research on architect	ture and civil engin	eering is designated	to deepen the know	vledge and enhanc	e the skills of the
students in their research fields t	hrough the self-or	iented endeavour wi	th the instruction of	his/her superviso	r(s).
Contents of class					
The subjects and the contents o	of the thesis vary	depending on the la	boratory. All studen	ts 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 under	r the guidance of the	supervisor(s).		
Self Preparation and Review					
Related subjects					
TBD by the laboratory					
Notes for textbook					
IBD by the laboratory					
Notes for reference					
Goals to be achieved					
Evaluation of achievement					
This credit is assigned for all the	process for the pr	eparation and presei	ntation of the thesis	·	
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					
Reter to administration office.					
Relations to attainment objective	is of learning and e	aucation			
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						
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		
		week,period					
Faculty	Graduate Progra	m for Master's Degre	e	Subject grade	2~2		
Department Offered	Architecture and	Civil Engineering		Beggining	M2		
	05万些改委号	ᄃᅎᄸᆇᇢᇊᆞᆞ	T: 0 FL : 1 1	grade			
Charge teacher name_Roman	55糸软防安貝,	5糸合教員 5kei kyoi	mu lin-S, Skei kakuk	youin			
Alphabet mark	ARC MAS51025						
	AR0_IMA001020						
This thesis research on erabits of	منعمه منبيا مسمنه	anving in designated	to doopon the lune	uladara and ambana	a tha akilla af tha		
This thesis research on architect	ure and civil engin	ieering is designated	to deepen the know	vieuge and ennanc			
Contents of class	nrough the self-or	iented endeavour wi		nis/ner superviso	r(s).		
The subjects and the contents of	f the thesis vary	depending on the la	horatory All studen	to must present t	pair thacic at the		
and of the course and take a fin	al examination on	the thesis as a rea	uirement for the gr	aduation of the ma	ester course. The		
study for the thesis is planned an	d conducted under	r the guidance of the					
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 pr	eparation and preser	ntation of the thesis	i.			
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 laboratory							
Office hours							
Refer to administration office.							
Relations to attainment objective	s of learning and e	aducation					
Key words							
Ney words							

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

Outlant man [Fault 1]				· · · · · · · · · · · · · · · · · · ·			
Subject name[English]	Seminar on Architecture and Givii Engineering[Seminar on Architecture and Givii						
	Engineering		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~		
Department Offered	Architecture and	Civil Engineering		Beggining	M1		
				grade			
Charge teacher name[Paman	05玄劫淼禾吕)	5kai kuomu Iin-S		grado			
olababat mark]	30宋秋初女員、						
Numbering	ARC_MA501020						
Objectives of class							
All the students are required to	attend all the sen	ninars, which is arran	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	e seminar.						
Contents of class							
In each seminar students pure	sue several resea	rch topics and/or	undertake projects	collectively and	solely under the		
instruction of the faculty member	rs of the denartme	ent and/or those of o	ther denartments	concertively and	bololy allact and		
Self Preparation and Paview			cher departmentes.				
Related subjects							
Natao far taxthook							
Notes for textbook							
Notes for reference							
Goals to be schieved							
Goals to be achieved							
Evaluation of achievement							
Report							
Examination							
レポートで実施							
By Report							
Details of exemination							
Details of examination							
Other information							
Reference LIRI							
Office hours							
Relations to attainment objectives of learning and education							
		oduoduon					
Key words							

(M45630030)Seismic Evaluation of Existing Buildings[Seismic Evaluation of Existing Buildings]

Subject name[English]	Seismic Evaluatio	- on of Exist	ting F	Ruildin	gs[Seismic Evaluation	on of Existing Build	lings]
Schedule number	M45630030 Subject area Advanced			Required or	Flective		
		Cubjee		•	Architecture	elective	Liootivo
					and Civil	0.000110	
					Engineering		
Time of starting a course	Spring term	Day	of	the	Tue.3~3	Credit(s)	2
_		week,p	eriod				
Faculty	Graduate Program	n for Mas	ter's	Degre	e	Subject grade	1~
Department Offered	Architecture and	Civil Engi	ineeri	ng		Beggining	M1
						grade	
Charge teacher name[Roman	松井 智哉 MATS	SUI Tomo	ya				
alphabet mark	100 110051005						
Numbering	ARC_MAS51025						
Objectives of class							
This course is intended to intro	duce the Japanese	e seismic	evalu	ation	method for existin	g buildings, in part	icular, reinforced
concrete buildings. The concept	and procedures of	t this me	thod	are c	utlined in this cour	se, to gain advanc	ed knowledge to
evaluate seismic performance of	existing buildings.						
This course is intended to intro-	auce the Japanese	e seismic f thia mai	evait	ation	method for existin	g buildings, in part	cicular, reinforced
evaluate seismic performance of	and procedures o		triou	are c	utilitied in this cour	se, to gain advant	eu knowledge to
Contents of class	existing buildings.						
1: Introduction							
2: Procedure of Seismic Evaluation	on						
3: Seismic Index of Structure: IS							
4: Irregularity and Time Indexes: \$	SD and T						
5: First Level Screening Procedu	re						
6: Second Level Screening Proce	dure -Basic Seismi	ic Index o	f Stri	ucture	e: E0-		
7: Second Level Screening Proce	dure –Strength Ind	ex: C−					
8: Second Level Screening Proce	dure -Ductility Inde	ex: F−					
9: Judgment on Seismic Safety							
10: Recent Earthquake Disasters							
11: Introduction of Seismic Retro	fit						
12: Observation of Retrofitted Bu	ildings						
13: Observation of Structural Tes	sting						
14: Explanation on Assignments							
1: Introduction							
2: Procedure of Seismic Evaluation	on						
3: Seismic Index of Structure: IS	SD and T						
5: First Level Screening Procedu							
6: Second Level Screening Proceeding	dure –Basic Seismi	ic Index o	f Stri	icture	•· F0-		
7: Second Level Screening Proce	dure -Strength Ind	ex: C-					
8: Second Level Screening Proce	dure -Ductility Inde	ex: F−					
9: Judgment on Seismic Safety	-						
10: Recent Earthquake Disasters							
11: Introduction of Seismic Retro	fit						
12: Observation of Retrofitted Bu	uildings						
13: Observation of Structural Tes	sting						
14: Explanation on Assignments							
Self Preparation and Review							
Related subjects							
Notes for textbook							
Standard for Seismic Evaluation of	of Existing Reinforc	ed Concr	ete B	Buildin	gs, 2001		
Standard for Seismic Evaluation of	of Existing Reinforc	ed Concr	ete B	Buildin	gs, 2001		
Notes for reference							
Goals to be achieved							

To understand nonlinear structural mechanics through learning the Japanese seismic evaluation method for existing buildings.
To understand nonlinear structural mechanics through learning the Japanese seismic evaluation method for existing buildings.
Evaluation of achievement
Report
- A 80 to 100
– B 65 to 79
- C 55 to 64
Report
– A 80 to 100
– B 65 to 79
– C 55 to 64
Examination
レポートで実施
By Report
Details of examination
Other information
Room : D-807
E-mail:matsui@ace.tut.ac.jp
Room : D-807
E-mail:matsui@ace.tut.ac.jp
Reference URL
http://rc.ace.tut.ac.jp/matsui/index.html
http://rc.ace.tut.ac.jp/matsui/index.html
Office hours
Wednesday 14:00-17:00
Wednesday 14:00-17:00
Relations to attainment objectives of learning and education
Key words

(M45630060)Building Science: Indoor Air Quality and Ventilation[Building Science: Indoor Air Quality and Ventilation]

	Ventilation]						
Schedule number	M45630060 Subject area		Advanced Architecture and Civil Engineering	Required elective	or	Elective	
Time of starting a course	Spring term	Day week.pe	of the	Wed.3~3	Credit(s)		2
Faculty	Graduate Progra	am for Mast	er's Degr	e	Subject grad	le	1~
Department Offered	Architecture an	d Civil Engi	neering		Beggining		M1
					grade		
Charge teacher name[Roman alphabet mark]	松本 博 MATS	UMOTO Hir	oshi				
Numbering	ARC_MAS51025						
Objectives of class							
 Cy voo This course aims at providing the in buildings. The goal is to help p and its control. Contents of class 本コースは、建物における良好なための導入として提供される。本: 1. 室内空気環境の概要 2. 建物由来の疾病と室内空気質 3. 室内空気の物理的・化学的特・ 4. 空気汚染物質の測定技術 5. 材料の化学物質放散と吸脱着 6. 室内空気質の予測手法 7. 空気流動の CFD 解析 	e practical strateg rofessionals updat 空気環境を実現 コースは以下のトロ 微	ies to realiz te their kno するための ピックスで棹	e a good wledge re 空内空気気 成される	air environment, mai lated to new technic 質の制御と換気手え	nly indoor air ques and meth 去を専門的に高	qualit iods c 高いレ	ey and ventilation on indoor climate
 汚染物質制御のための換気シ 10. IAQ に関するガイドライン、コ・ 11. IAQ に関する最近の研究開発 12. IAQ に関する最近の研究開発 13. IAQ に関する最近の研究開発 14. IAQ 問題に関する討論 15. 補講 The course is offered as an int 	マテム設計 ード及び基準 ě(1) ě(2) ě(3) roduction to a pr	rofessional-	level und	erstanding of indoor	r air quality c	ontro	l and ventilatior
method for realizing a good air er	ivironment in build	lings. The c	ourse con	sists of the following	g topics:		
 Overview of indoor air environm Building related illness and indo Physical/chemical characterist Measurement techniques of air Modeling of material emission a Prediction method for indoor a CFD analysis of air movement Performance evaluation of ven Ventilation system design for p O Guidelines, ordes and standard 	nent por air quality tics of air quality pollutants and sorption ir quality (IAQ) in tilation systems pollutant control rd on IAQ	rooms					

Related subjects	
Notes for textbook	
関連する資料を配	布
The related handou	its will be distributed.
Notes for referenc	•
Goals to be achiev	ed
本コースは, シック 践的な手法を理解	ビルディングシンドロームの背景と室内空気質を制御することによって良好な空気環境を実現するための身 し、健康的で持続可能な建築を提示することを達成目標にする。
Achievement level	of this course is to understand the background of sick building syndrome and the practical strategies t
realize a good air	environment by controlling indoor air quality and ventilation in buildings, and also propose the healthy an
sustainable building	ζ ς .
Evaluation of achie	vement
本科目に関連する	レポートを課し,その達成度をいよって評価する。
Reports related to	this subject are reviewed to evaluate the achievement level.
Examination	
レポートで実施	
By Report	
Details of examination	tion
Other information	
E-mail: matsu@ace	.tut.ac.jp
Email: matsu@ace.t	ut.ac.jp
Reference URL	
Office hours	
Relations to attain	ment objectives of learning and education
Key words	
室内空気質,健康	建築, シックビル症候群, 換気
Indeer Air Quelity	Healthy Building Sick Building Syndrome Ventilation

(M45630140)Advanced District Planning[Advanced District Planning]

Subject name[English]	Advanced Distric	t Planning[Advance	d District Planning]				
Schedule number	M45630140	Subject area	Advanced	Required or	Elective		
			Architecture	elective			
			and Civil				
			Engineering				
Time of starting a course	Spring term	Day of the	Tue.1~1	Credit(s)	2		
		week,period					
Faculty	Graduate Program	n for Master's Degr	ee	Subject grade	1~		
Department Offered	Architecture and	Civil Engineering		Beggining	M1		
				grade			
Charge teacher name[Roman	浅野 純一郎,小	野 悠 ASANO Juni	chiro, ONO Haruka				
alphabet mark]							
Numbering	ARC_MAS51025						
Objectives of class							
1) To gain the practical knowledg	e of urban and dist	rict planning.					
2) To learn the advanced method	s of district plannir	ng and design.					
3) To learn the theory and the sy	stem of Japanese	land use control sys	tem and land readju	stment projects.			
Contents of class	÷		-	-			
The major topics that will be add	ressed in this class	are the followings.					
1. Overview of the theory and co	ncrete policy and n	nethods about mode	rn urban planning sv	stem in Japanese			
2. Overview of Japanese land use	e control system. e	specially area divisio	on system and devel	opment permission.			
3. Overview of Japanese land rea	diustment projects		-				
4. Practice by application of the	design methods abo	out land readiustme	nt project and distric	t planning.			
5. Overview of newer paradigm of	Urban planning in	the world, especially	/ smart growth. city	compactness etc.			
Reporting textbook "Urban Plan	ning System in Jar	an 2nd Edition" an	d doing workshop a	out land readiustr	ment project and		
district planning			a aonig noriconop a				
Solf Properation and Paviou							
					4		
Fundamentally, this lecture's go	al would be achiev	led by learning and	researching for th	e small topics for	themselves. the		
Contents of topics would be expla	ained in the lecture	S.					
The following knowledge is desira	ble,						
1) The basic knowledge on moder	n urban planning						
2) The knowledge on urban plann	ing system in your	country					
Notes for textbook							
 Urban Planning System in Japar 	1 2nd Edition						
 Urban Land Use Planning System 	m in Japan 2dn Edi [.]	tion					
Both have been published by Jap	an International Co	operation Agency					
Notes for reference							
Goals to be achieved							
Evaluation of achievement							
Submitting reports about textbook and another theme. Written report: 100%, but this report will be checked several classes							
through discussion with students.							
Examination							
レポートで実施							
By Report							
Details of examination							
By report							
Other information							
Reference URL							
https://webct.edu.tut.ac.ip:443/w	ebct/public/home.	pl					
or https://moodle.imc.tut.ac.ip/		•					
More information and pdf.files of	textbook will be off	ered from Webct.					
Office hours							

Relations to attainment objectives of learning and education

Key words

District planning, Land use control system, Land readjustment, urban design, city shrinkage

(M45630180)Advanced Computational Economics[Advanced Computational Economics]

Subject name[English]	Advanced Computational Economics[Advanced Computational Economics]						
Schedule number	M45630180	Subject are	a	Advanced	Required or	Elective	
	Architecture		elective				
				and Civil			
				Engineering			
Time of starting a course	Spring term	Day of week,perio	the d	Tue.4~4	Credit(s)	2	
Faculty	Graduate Program	n for Master's	s Degre	ee	Subject grade	1~	
Department Offered	Architecture and	Civil Enginee	ring		Beggining	M1	
					grade		
Charge teacher name[Roman	渋澤 博幸 SHIBU	USAWA Hiroy	uki				
alphabet mark]							
Numbering	ARC_MAS51025						
Objectives of class							
In this course, students learn the	economic modeling	g techniques	and the	e simulation method	ology.		
In this course, students learn the	economic modeling	g techniques	and the	e simulation method	ology.		
1-2: Input-Output Model	uilibrium Madal						
5-6: Inter-Sectoral Concret Ervill	jumprium Model						
7-8: Simulation and Numerical Ex							
9-11: Open Model with Exports a	nd Imports						
12–13: General Equilibrium Model	with Public Sector						
14–15: Simulation and Numerical	Example						
1–2: Input–Output Model							
3-4: Simple 2 Sectors General Ec	guilibrium Model						
5–6: Inter-Sectoral General Equil	ibrium Model						
7–8: Simulation and Numerical Ex	ample						
9-11: Open Model with Exports a	nd Imports						
12-13: General Equilibrium Model	with Public Sector						
14-15: Simulation and Numerical	Example						
Self Preparation and Review							
Required Assignments							
Students are required to learn to	pics and exercises	before and at	ter ea	ch class.			
Required Assignments			_				
Students are required to learn to	pics and exercises	before and a	ter ea	ch class.			
Related subjects							
Industrial Policies, Econometrics							
Industrial Policies, Econometrics							
Papers will be distributed							
Papers will be distributed.							
Notes for reference							
Goals to be achieved							
Acquiring the theory of the gene	ral equilibrium mod	el.					
Constructing a general equilibrati	on model using an i	numerical dat	a.				
Evaluating impacts of an econom	ic polity using the g	general equilib	orium m	nodel.			
Acquiring the theory of the gene	ral equilibrium mod	el.					
Constructing a general equilibrati	on model using an i	numerical dat	a.				
Evaluating impacts of an econom	ic polity using the g	general equilib	orium m	nodel.			
Evaluation of achievement							
Reports must be submitted. Repo	ort 100%.		-				
A: 80 Points or higher, B: 65 poin	ts or higher, C:55 p	oints or highe	er, D: L	ess than 55 points			
Penarts must be submitted Pena	vrt 100%						
A: 80 Points or higher B: 65 points	ts or higher C:55 n	oints or high	r D. I	ess than 55 points			
, a so i ontes of higher, b. oo point	co or mgnor, 0.00 p	onico or night	/, D. L	see than of points			

Examination
レポートで実施
By Report
Details of examination
Other information
Reference URL
www.pm.ace.tut.ac.jp
www.pm.ace.tut.ac.jp
Office hours
Wednesday 9:00-10:00
Wednesday 9:00-10:00
Relations to attainment objectives of learning and education
Key words
Computational Economics, Simulation
Computational Economics. Simulation

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

Subject name[English]	Advanced Structural System Planning and Design II[Advanced Structural System Planning and Design II]						
Schedule number	M45630200	Subject area	Advanced Architecture and Civil	Required or elective	Elective		
			Engineering				
Time of starting a course	Spring term	Day of the week,period	Intensive	Credit(s)	2		
Faculty	Graduate Progra	am for Master's Degre	e	Subject grade	1~		
Department Offered	Architecture and	d Civil Engineering		Beggining	M1		
Charge teacher name[Roman	S5系教務委員	5kei kyomu Iin−S		Grado			
Numbering	ARC_IMA301020						
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 subject	ts related to the cur	rent research activi	ty of the laborator	y. The scheduled		
program of the seminars is annou	nced by the supe	rvisor at the guidance	e of the seminar.				
Contents of class							
In each seminar, students purs	ue several resea	arch topics and/or	undertake projects	collectively and	solely under the		
instruction of the faculty member	s of the departme	ent and/or those of o	ther departments.				
Self Preparation and Review							
Related subjects							
Notes for textbook							
Notes for reference							
Goals to be achieved							
Evaluation of achievement							
Examination							
レポートで実施							
By Report							
Details of examination							
Report							
Other information							
Reference URL							
Office hours							
Relations to attainment objectives of learning and education							
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	sign II]	1	1			
Schedule number	M45630220	Subject area	Advanced	Required or	Elective		
			Architecture	elective			
			and Civil				
			Engineering	a u ()			
lime of starting a course	Spring term	Day of the	Intensive	Credit(s)	2		
		week,period		<u></u>	1		
Faculty	Graduate Program	m for Master's Degre	ee	Subject grade	~ 		
Department Offered	Architecture and	Givil Engineering		Beggining			
Charge teacher name[Paman	05 云	ikai kuomu lin-S		grade			
Charge teacher name_roman	55术软伤安良5	okei kyömu im-3					
	APC MAS51025						
	AI\0_WA331023						
	.						
It depends on the laboratory. I	he resistered stud	dents are required	to attend all the s	eminars, which is	arranged by the		
laboratory supervisor for the spe	cial study subjects	s related to the cur	rent research activi	ty of the laborator	y. The scheduled		
program of the seminars is annou	nced by the super	visor at the guidance	e of the seminar.				
Contents of class							
In each seminar, students purs	ue several resear	rch topics and/or	undertake projects	collectively and	solely under the		
instruction of the faculty member	's of the departmer	nt and/or those of o	ther departments.				
Self Preparation and Review							
Related subjects							
Notes for textbook							
Notos for reference							
Notes for reference							
Goals to be achieved							
Evaluation of achievement							
Examination							
レポートで実施							
By Report							
Details of examination							
Report							
Other information							
Reference URL							
Office hours							
Relations to attainment objectives of learning and education							
	U • • • •						
1							
Key words							

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

	System Fiamming a		ou nogional oystem	Fiamining and Desig	511.84]		
Subject name[English]	Advanced Regional System Planning and Design II[Advanced Regional System Planning and Design II]						
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		
	Opinig cerm	week period	Incensive		2		
Faculty	Graduate Progra	am for Master's Degr		Subject grade	1~		
Department Offered	Architecture an	d Civil Engineering		Beggining	м1		
Dopartment Onered	Architeotare an			made	1411		
Charge teacher name[Paman	05 云	Ekoi kuomu lin-S		giauo			
olabebet morel	55米我杨安良	Skel kyönnu int S					
	ADC MASS1025	:					
Numbering	ARC_INA331023						
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	nced by the supe	rvisor at the guidance	e of the seminar.				
Contents of class							
In each seminar, students purs	ue several resea	arch topics and/or	undertake projects	collectively and	solely under the		
instruction of the faculty member	rs of the departme	ent and/or those of o	ther departments.				
Self Preparation and Review							
Balanda a Maria							
Related subjects							
Notes for textbook							
Notes for reference							
Goals to be achieved							
Evaluation of achievement							
F 1 11							
レホートで実施							
By Report							
Details of examination							
Report							
Other information							
Reference URL							
Office hours							
Relations to attainment objectives of learning and education							
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1							
Key words							
Noy Worus							

(M45630280)Advanced Architectural Planning[Advanced Architectual Planning]

Subject name[English]	Advanced Archite	ectural Planning[Adv	anced Architectual	Planning]			
Schedule number	M45630280	Subject area	Advanced	Required or	Elective		
			Architecture	elective			
			and Civil				
			Engineering				
Time of starting a course	Spring term	Day of the week,period	Tue.2~2	Credit(s)	2		
Faculty	Graduate Program	n for Master's Degre	e	Subject grade	1~		
Department Offered	Architecture and	Civil Engineering		Beggining	M1		
				grade			
Charge teacher name[Roman	水谷 晃啓 MIZU	水谷 晃啓 MIZUTANI Akihiro					
alphabet mark]	·						
Numbering	ARC_MAS51025						
Objectives of class							
公共建築および社会基盤施設を	計画する場合に、そ	それらを計画するとし	いう事は、何を、どの。	ように考えて計画す	「る事なのかを学		
Architecturel al	theory for the state	an huildine 🗖 🐪			tionality		
Architectural planning is a basic	theory for designin	ng buildings. Fundan	nentally, The field fo	cused on the fund	ctionality and the		
relationship between people's act	Ivities and spaces V	without an architect	s design sense.	اللاحين والمعام والمع	(
Some countries have something	, like this field (For	example, Japanese,	America, Sweden, N	ietherlands, and Ul	NJ.		
vontents of class							
・ ハ1メノス、「建梁計画とは?」	いですかつ たー	隹△户⇨₄					
∠ 未まつし仕むにほどつすればい 2 ビスカーナー 体にたり ー・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・	いじ9 か? - 住宅 いつ ひつ たへい	、未百仕乇一					
ってりやつし一桶に住んでいます。 ↓ 学校建築 レナロホー 巻へ ○○	い : - 1土毛、耒台1 数	江七 2					
□ + + 水炷采Cは10 か - 教会への 5 学校建築 いけ/ママナム へ □ -	が月城送へ 1月10日またのよ	国なる単面					
□」ナ™は完ていれりじりか?「日本 6 保 杏 周 レ 幼 班 周	、山内の到さと日本	山アの事例					
◦ 休日園⊆幼稚園 7 図書館でできス⁻レ							
・ 四日四 こうてつして 8 病院の発展							
- あましいの成 9 なぜ保音園が必要かのですか?	2						
- っこ ホョ 画 ハ ジ女なの じゅか 10 オフィス - アーキテクチャけ作	業スタイルを艹ポ–	ートできますか?					
11 劇場 - 劇場の発展	~~~~ // e ///-	· · · · · · · · · · · · · · · · · · ·					
12 博物館で何ができますかっ							
13人間のスケールと身体との関	ž						
14 私たちは都市でどのようかいま	 との場所を使田 <i>て</i>	いますか?					
15日本における建築計画のキレ	o b	/ /					
1 Guidance. "What is Architect	ural Planning?"						
2 How do we live together ? -	Housing, Collect	tive Housing1					
3 How do we live together ? -	Housing, Collect	tive Housing2					
4 What is school architecture	? - Toward Churc	h to Educational ins	titute				
5 What is school architecture	? Movement of Ja	apan and Europe					
6 Nursery and Kindergarten		• `					
7 What can we do in a library?	>						
8 The development of Hospital	8 The development of Hospital						
9 Why do we need nursery ?							
10 Office - Can architecture support the work style?							
11 Theater - The development of theaters							
12 What can we do in a museum?							
13 The relationship between Human scale and a body							
14 What public place do we use in a city?							
15 Summary of Architectural Planning in Jppan							
Self Preparation and Review							
各回のテーマに関連する建築を可能な限り訪れ、その社会的状況について調べ、あなたなりの考えを述べることができるよう準							
Please visit the buildings related to each theme as much as possible, investigate the its social situation, and prepare to							
describe your thoughts.							
Kelated subjects							
計画で調査							
建筑設計演習工作の21							
建業設計) 供育基礎							
Notes for textbook							

Notes for reference
Please refer them(sorry, Japanese only).
建築設計資料集成・総合編・日本建築学会編(丸善、2001 年)
建築設計資料集成・拡張編・集会・市民サービス・日本建築学会編(丸善、2002 年)
Goals to be achieved
公共建築および社会基盤施設の計画立案のための基礎理論を習得する。
Master the basic theory for designing planning of public buildings.
Evaluation of achievement
レポート 70% その他授業中の質疑応答など 30% 左記の割合で、総合的に評価する。
評価基準:原則的にすべての講義に出席したものにつき、下記のように成績を評価する。
A:達成目標をすべて達成しており, かつテスト・レポートの合計点(100 点満点)が 80 点以上
B:達成目標を〇%達成しており, かつテスト・レポートの合計点(100 点満点)が 65 点以上
C:達成目標を〇%達成しており, かつテスト・レポートの合計点(100 点満点)が 55 点以上
The grades will be evaluated by comprehensive consideration based on discussion (30%) and reports (70%) in the course.
[Evaluation basis] Students who attend all classes will be evaluated as follows:
A: Achieved all goals and obtained total points of reports, 80 or higher (out of 100 points).
B: Achieved 70 % of goals and obtained total points of reports, 65 or higher (out of 100 points).
C: Achieved 60 % of goals and obtained total points of reports, 55 or higher (out of 100 points).
Examination
レポートで実施
By Report
Details of examination
Other information
Reference URL
Office hours
Relations to attainment objectives of learning and education
Key words
Architectural Planning, space composition, Human life, Culture, Behavior and Activities, function

(M45630330)Geohazards[Geohazards]

Subject name[English]	Geohazards[Geohazards]						
Schedule number	M45630330 Subject area Advanced		Required or	Elective			
				Architecture	elective		
				and Civil			
				Engineering			
Time of starting a course	Spring term	Day o	f the	Tue.5~5	Credit(s)	2	
		week,per	iod				
Faculty	Graduate Program	n for Maste	r's Degr	ee	Subject grade	1~	
Department Offered	Architecture and	Civil Engin	eering		Beggining	M1	
					grade		
Charge teacher name[Roman	松田 達也 MATS	UDA Tats	ıya				
alphabet mark]							
Numbering	ARC_MAS51025						
Objectives of class							
The objective are to underdstan	d the characteristi	cs of geo	-hazards	such as earthquak	es, landslides,and	flloodings and to	
learn environment planning to mit	igate the disasters.						
The objective are to underdstan	d the characterist	cs of geo	-hazards	such as earthquak	es, landslides,and	flloodings and to	
learn environment planning to mit	igate the disasters.						
Contents of class							
1 : An introduction to geology and	l planning						
2 : Earthquakes and faulting							
3 : Volcanic activity							
4 : Soil properties and problems							
5 : Landslides							
6 : Subsidence							
7 : Coastal Process							
8 : Flooding							
9 : Groudwater							
10 : Waste treatment							
II: Mineral resouses	resouses						
12 : Energy resources	nergy resources						
13 : Environmental planning							
14 : Environmental law	L						
2 : Earthquakes and faulting	i pianning						
2 : Volcanio activity							
4 : Soil properties and problems							
5 : Landslides							
6 : Subsidence							
7 : Coastal Process	v . Subsidinge 7 · Coastal Process						
8 · Flooding							
9 : Groudwater							
10 : Waste treatment							
11 : Mineral resouses							
12 : Energy resources							
13 : Environmental planning							
14 : Environmental law							
Self Preparation and Review							
Related subjects							
Geotechnical Analysis, Advanced Geotechnical Engineering and Hazard Mitigation							
Notes for textbook							
None							
News							
ivone							

Notes for reference

Goals to be achieved

·Understanding the characteristics of geohazards such as earthquake, landslide and flooding.

- •Understanding the land use planning and law for mitigation of the disaster.
- ·Understanding the characteristics of geohazards such as earthquake, landslide and flooding.
- •Understanding the land use planning and law for mitigation of the disaster.

Evaluation of achievement

Report and the presentation of the report.

- S: Obtained total points, 90 or higher (out of 100 points).
- A: Obtained total points, 80 or higher (out of 100 points).
- B: Obtained total points, 70 or higher (out of 100 points).
- C: Obtained total points, 60 or higher (out of 100 points).
- Report and the presentation of the report.
- S: Obtained total points, 90 or higher (out of 100 points).
- A: Obtained total points, 80 or higher (out of 100 points).
- B: Obtained total points, 70 or higher (out of 100 points).
- C: Obtained total points, 60 or higher (out of 100 points).

Examination

レポートで実施

By Report

Details of examination

Other information

office:D-808 Tel:0532-44-6849 E-mail:t.matsuda@ace.tut.ac.jp office:D-808 Tel:0532-44-6849 E-mail:t.matsuda@ace.tut.ac.jp **Reference URL** preparing

preparing

Office hours

12:00–13:00 on Wednesday 12:00–13:00 on Wednesday

Relations to attainment objectives of learning and education

Key words

geohazard, mitigation planning geohazard, mitigation planning

(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	0.000.00		
				Engineering			
Time of starting a course	Spring term	Day of	the	Fri.4~4	Credit(s)	2	
		week,period					
Faculty	Graduate Program	n for Master's	Degre	e	Subject grade	1~	
Department Offered	Architecture and	Civil Engineer	ing		Beggining	M1	
		grade					
Charge teacher name_Roman	开上 隆信, 傾田 久里子 INOUE Takanobu, YOKOTA Kuriko						
	ABC M4551025						
Objectives of class	/ 110_11/1001020						
To know and understand the wate	ar quality change in	environment	and tr	eatment system			
To know and understand the wate	er quality change in er quality managem	ent		cathlent system.			
Contents of class	or quality managori	0110.					
Water pollutants and management	ŀ						
1-2 environmental standard							
3–5 nutrients. organic matter							
6–7 chemicals in water environ	ment						
(Yokota)							
•							
drinking water treatment and was	te water treatment						
8-9 rapid sand filtration proces							
10-11 activated sludge treatmen	t process						
water quality change in environme	ent and treatment (system					
12 fundamental equation of the	mass halance	system.					
13 piston flow model							
14 complete mixing model							
15 reaction rate							
(Inque)							
Self Preparation and Review							
-							
Related subjects							
Notes for textbook							
Notes for reference	1855.						
Goals to be achieved							
To understand the water pollution	and environmenta	l quality stand	ard				
Evaluation of achievement		. quancy scalla	u. u.				
[Evaluation basis] Students who	attend all classes w	vill be evaluate	d as f	ollows.			
A: Achieved all goals and obtained	d total points of rer	ports and pres	entati	on. 80 or higher (out	of 100 points)		
B: Achieved 65 % of goals and obtained total points of reports and presentation, 60 or higher (out of 100 points).							
C: Achieved 55 % of goals and obtained total points of reports and presentation, 55 or higher (out of 100 points).							
Examination							
 レポートで実施							
By Report							
Details of examination							
Other information							
Reference URL							
Office hours							

Wednesday 12:00- 13:00 Relations to attainment objectives of learning and education

Key words

(M45630360)Advanced Transportation and Traffic Engineering[Advanced Transportation and Traffic Engineering]

Subject name[English]	Advanced Tran	enortation and Traf	fic Engineering[Adv	anced Transporta	tion and Traffic		
	Figineering]						
Schedule number	M45630360	Subject area	Advanced	Required or	Elective		
			Architecture	elective			
			and Civil				
			Engineering				
Time of starting a course	Spring term	Day of the week period	Fri.2~2	Credit(s)	2		
Faculty	Graduate Progra	m for Master's Degre	e	Subject grade	1~		
Department Offered	Architecture and	d Civil Engineering		Beggining	M1		
Charge teacher name[Roman	杉木 直 SUGIK	l Nao					
alphabet mark]							
Numbering	ARC_MAS51025						
Objectives of class							
To obtain the advanced knowledg	ge of theories and	methods for policies	and planning for tra	nsportation and urb	oan structure.		
Contents of class							
By using reports and papers on	transportation and	d urban structure, st	udents learn the ac	lvanced transporta	tion theories and		
methods. Discussion between the	e lecturer and stud	lents will be performe	d in the lecture tim	e.			
Self Preparation and Review							
Related subjects							
Advanced Transportation System	n and Transport Ec	onomics					
Notes for textbook							
Textbooks and scientific papers s	shall be announced	at the start of the c	lass.				
Notes for reference							
Goals to be achieved							
1.To understand the necessity ar	nd significance of p	olicy and planning fo	r transportation and	l urban structure.			
2.To understand theories and me	thodologies in the	above mentioned fiel	ds.				
Evaluation of achievement							
Evaluation of achievement: The a	cademic score of	each student is evalu	ated by reports (10	0%).			
Criteria of evaluation: Score A is	80 or higher, sco	re B is 65 or higher	to lower than 80, so	ore C is 55 or hig	her to lower than		
65.							
Examination							
レボートで実施							
By Report							
Details of examination							
Other information							
N. Sugiki:D-705, 6833, sugiki@ace.tut.ac.jp							
N. Sugiki: https://sites.google.com/site/trlabotut/home-en							
Umce nours At any time. Disease context Surihi by a mail in advance							
At any time. Please contact Sugiki by e-mail in advance.							
Relations to attainment objectives of learning and education							
Key words							
Transportation system, Urban structure, Simulation model, Evaluation method							