Toyama College	Control Information Systems Engineering Course	Year	2020

Department Goals

Control Information Systems EngineeringProgram develops professional engineerswho acquire technologies for software,electricity / electronics and networksand who can design a system in whichthey are cooperatively coupled.

Course Category		Course Title	Course Code	Credit Type	Credits	Class Hours per Week								Instructor	Division in Learning
						Adv. 1st Y				Adv. 2nd Y					
						1st		2nd		1st		2nd			
						1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q		
General	Compulsory	Advanced English Practicum I	0007	Academic Credit	2	2								Moananu Charlton	
General	Compulsory	Advanced English Practicum II	0008	Academic Credit	2			2						Moananu Charlton	
General	Elective	Advanced English Workshop	0009	Academic Credit	2	2								Nishihara Masahiro	
Specialized	Elective	Shock Compression and Blast Wave	0001	Academic Credit	2	2								Homae Tomotaka	
Specialized	Compulsory	Thesis Research I	0002	Academic Credit	2	2								Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi	
Specialized	Compulsory	Thesis Research I	0003	Academic Credit	2			2						Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi	

Specialized	Elective	Advanced Communication Engineering	0004	Academic Credit	2	2							Ogum a Hiroshi	
Specialized	Elective	Instrument and Control Programming	0005	Academic Credit	2	2							Mizumoto Iwao	
Specialized	Elective	Quantum Electronics	0006	Academic Credit	2			2					Yoshii Yotsumi	
Specialized	Compulsory	Technical English	0010	Academic Credit	2			2					Moananu Charlton,Matoba Ryuichi,Yoshii Yotsumi,Nakatani Toshihiko,Kyoden Tomoaki	
Specialized	Elective	Advanced Business Strategy	0011	Academic Credit	2			2					Miyashige Tetsuya	
Specialized	Elective	Regional Industry	0012	Academic Credit	2			2					,	
Specialized	Elective	Management of Technology	0013	Academic Credit	2	2							Kiyoshi Takeharu	
Specialized	Elective	Information Processing	0014	Academic Credit	2	2							Akiguchi Shunsuke	
Specialized	Elective	Object-oriented Programing	0015	Academic Credit	2			2					Hayase Yoshikazu	
Specialized	Elective	Advanced Computational Engineering	0016	Academic Credit	2			2					Furuyama Shoichi	
Specialized	Elective	Intelligent Information Processing	0017	Academic Credit	2			2					Akiguchi Shunsuke	
Specialized	Compulsory	Advanced Applied Mathematics	0018	Academic Credit	2	2							Sakurai Hideto	
Specialized	Compulsory	Advanced Applied Physics	0019	Academic Credit	2	2							Ohtake Yukiko	
Specialized	Elective	Seminar on Mathematics and Physics Application	0020	Academic Credit	2			2					Ito Nao	

Specialized	Compulsory	Advanced Experiments	0021	Academic Credit	2	2							Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Ogu ma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao, Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi	
Specialized	Compulsory	Advanced Experiments	0022	Academic Credit	2			2					Tsukada Akira,Ito Nao,Mizumoto Iwao, Aso Tsukasa,Yoshii Yotsumi	
Specialized	Compulsory	Advanced Seminars and Exercises	0023	Academic Credit	2	2							Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Ogu ma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao, Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi	
Specialized	Compulsory	Advanced Seminars and Exercises	0024	Academic Credit	2			2					Tsukada Akira,Ito Nao,Mizumoto Iwao, Aso Tsukasa,Yoshii Yotsumi	

Specialized	Elective	Internship B	0025	Academic Credit	3	3							Furuyama Shoichi,Hsegawa Hiroshi,Kyoden Tomoaki	
Specialized	Elective	Internship A	0026	Academic Credit	2	2							Yoshii Yotsumi,Hsegawa Hiroshi	
General	Elective	Japanese Language and Literature	0036	Academic Credit	2							2	Kondo Shugo	
General	Elective	Regional Studies	0038	Academic Credit	2					2			Yokota Kazuhiro	
General	Elective	Health Science	0039	Academic Credit	2							2	Ohashi Chisato	
General	Elective	Industrial Society	0040	Academic Credit	2					2			Hsegawa Hiroshi	
General	Elective	Culture Studies of Japan Sea Rim Countries	0041	Academic Credit	2							2	Miyazaki Izumi	
Specialized	Compulsory	Engineering Ethics/Business Ethics	0028	Academic Credit	2							2	Yokota Kazuhiro,Tsukada Akira, Matsubara Yoshihiro	
Specialized	Elective	Parameter Design	0029	Academic Credit	2					2			Mizutani Junnosuke	
Specialized	Elective	Manufacturing System	0030	Academic Credit	2							2	Yamamoto Keiichiro	
Specialized	Elective	Introduction to Geoscience	0031	Academic Credit	2							2	Fukudome Kenichi	
Specialized	Compulsory	Thesis Research I	0032	Academic Credit	5					5			Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao, Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi	

Specialized	Compulsory	Thesis Research Ⅱ	0033	Academic Credit	5							5	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Ogu ma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao, Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi	
Specialized	Elective	Advanced Electromagnetic Waves	0034	Academic Credit	2					2			Shina Toru	
Specialized	Elective	Trade Procedure in Port	0035	Academic Credit	2					2			Okamoto Katsunori	
Specialized	Elective	Port Logistics	0037	Academic Credit	2					2			Okamoto Katsunori	
Specialized	Elective	International Relations	0042	Academic Credit	2							2	Ebihara Tsuyoshi	
Specialized	Elective	Biological Information Engineering	0043	Academic Credit	2					2			Tsukada Akira	
Specialized	Elective	Network System	0044	Academic Credit	2					2			Aso Tsukasa	

Toyama College	Year	2020	Course Title	Advanced English Practicum I

Course Information

Course Code	0007	Course Category	General / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	TOEIC テスト書き込みドリル. 桐原書店，英語多読図書（後期）		
Instructor	Moananu Charlton		

Course Objectives

(1) Acquire advanced, technical vocabulary, collocations and expressions necessary to read a basic business report, e-mail, or letter.
(2) To improve reading efficiency.
(3) Acquire listening ability to understand essential topics in English.
(4) Give technical presentations in English.

Rubric

	理想的な到達レベルの目安 (high) 80%	標準的な到達レベルの目安 (moderate) 60%	未到達レベルの目安 (Fail) <60%
評価項目1 Technical Vocabulary: words; collocations, expression	Student clearly comprehends technical vocabulary covered in the textbook.	Student partially comprehends technical vocabulary covered in the textbook.	Student is unable to comprehend technical vocabulary covered in the textbook.
評価項目2 Reading efficiency	Student is clearly able to read efficiently and comprehend the material.	Student is partially able to read efficiently and comprehend the material.	Student is unable to read efficiently and comprehend the material.
評価項目3 Presentation skills	Student is clearly able to give a well-structured presentation including all the required tasks.	Student is partially able to give a well-structured presentation including all the required tasks.	Student is unable to give a well-structured presentation including all the required tasks.
評価項目4 Presentation contents	Presentation contents are well-organized and pertinent to the task.	Presentation contents are partially well-organized and pertinent to the task.	Presentation contents are poorly-organized and not pertinent to the task.
評価項目3 Presentation delivery	Presentation delivery was clearly effective and convincing.	Presentation delivery was partially effective and convincing.	Presentation delivery was not effective nor convincing.

Assigned Department Objectives

Teaching Method

Outline	(1) Goal To acquire English communication skills required for research and work. To improvve hearing and reading accuracy for English materials such as e-mails, reports, basic conversations. (2) Overview Ability to listen to the content of information related to business, through exercises equivalent to 400 points on the TOEIC test. Increase vocabulary and add reading comprehension. (3) Teach the necessary skills to give technical presentations in English. *This class will be led by a teacher who is licensed in TESOL (Teaching English to Speakers of Other Languages) as well as in TEFL (Teaching English as a Foreign Language).
Style	The class meets once a week for 90-minutes in the language lab. The teacher will use the textbook as a basis and supplement it with other authentic material. The teacher will introduce various web applications including CALLthat will help with the aims of this class
Notice	All assignments should be submitted by the deadline. Make-up examinations due to absence will ONLY be given with a doctor's note or an "excused" absence.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance/ Teacher self-introduction-Quiz / Day 1. "Hotels and Restaurants" /	Syllabus explanation. TOEIC pre-test./Teacher self introduction-Kahoot Quiz. Introduction of "how to give effective presentations"/ Day 1
		2nd	Day 1 (continued) / Speaking 1. student presentations.	students 1~20 / Day 1, related speaking, listening, reading exercises
		3rd	Day 1 (cont.)	Day 1, related speaking, listening, reading exercises
		4th	Day 2 "Travel and Business Trip" / Introduction of Speaking 2. News Flash presentation.	Day 2, related speaking, listening, reading exercises / Prep for "NewsFlash" project.
		5th	News Flash presentations. Day 3 "Office Routine 1".	Day 3, related speaking, listening, reading exercises/ students 1~5 presentations,
		6th	News Flash presentations (cont) , Day 3 (cont.)	Day 3, related speaking, listening, reading exercises / students 6~10
		7th	News Flash presentations (cont.), Day 4 "Office Routine 2"	Day 4, related speaking, listening, reading exercises. / students 11~15
		8th	News Flash presentations (cont.), Day 5 (Review of Days 1~4)	Day 5, related speaking, listening, reading exercises / students 16~20.
	2nd Quarter	9th	Test 1.	Units 1~5 Test (Midterm).
		10th	Group Project 1 "The Country We would like to visit the most"	Group Project 1 Explanation and preparation.
		11th	Group Project 1 presentation	Groups 1~5 presentation / evaluation

		12th	Day 6 "Job openings and Recruitment.	Day 6, related speaking, listening, reading exercises./ Class discussion of homework questions
		13th	Day 7 "Personnel Affairs"	Day 7, related speaking, listening, reading exercises./ Class discussion of homework questions
		14th	Day 8 "Conference and Presentation Seminar	Day 8, related speaking, listening, reading exercises./ Class discussion of homework questions
		15th	期末試験	Units 6~8
		16th	Day 9 "Business"	Day 9, related speaking, listening, reading exercises./ Class discussion of homework questions

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	70	20	0	0	0	10	100
基礎的能力	70	20	0	0	0	10	100
専門的能力	0	0	0	0	0	0	0
分野横断的能力	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced English Practicum II

Course Information

Course Code	0008	Course Category	General / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	TOEIC Listening and Reading, 書き込みドリル. 桐原書店.		
Instructor	Moananu Charlton		

Course Objectives

(1) Acquire advanced, technical vocabulary, collocations and expressions necessary to read a basic business report, e-mail, or letter.
(2) To improve reading efficiency.
(3) Acquire listening ability to understand essential topics in English.
(4) Give technical presentations in English.

Rubric

	理想的な到達レベルの目安 (high) 80%	標準的な到達レベルの目安 (moderate) 60%	未到達レベルの目安 (Fail) <60%
評価項目1 Technical Vocabulary: words; collocations, expression	Student clearly comprehends technical vocabulary covered in the textbook.	Student partially comprehends technical vocabulary covered in the textbook.	Student is unable to comprehend technical vocabulary covered in the textbook.
評価項目2 Reading efficiency	Student is clearly able to read efficiently and comprehend the material.	Student is partially able to read efficiently and comprehend the material.	Student is unable to read efficiently and comprehend the material.
評価項目3 Presentation skills	Student is clearly able to give a well-structured presentation including all the required tasks.	Student is partially able to give a well-structured presentation including all the required tasks.	Student is unable to give a well-structured presentation including all the required tasks.
評価項目4 Presentation contents	Presentation contents are well-organized and pertinent to the task.	Presentation contents are partially well-organized and pertinent to the task.	Presentation contents are poorly-organized and not pertinent to the task.
評価項目3 Presentation delivery	Presentation delivery was clearly effective and convincing.	Presentation delivery was partially effective and convincing.	Presentation delivery was not effective nor convincing.

Assigned Department Objectives

Teaching Method

Outline	(1) Goal To acquire English communication skills required for research and work. To improvve hearing and reading accuracy for English materials such as e-mails, reports, basic conversations. (2) Overview Ability to listen to the content of information related to business, through exercises equivalent to 400 points on the TOEIC test. Increase vocabulary and add reading comprehension. (3) Teach the necessary skills to give technical presentations in English. *This class will be led by a teacher who is licensed in TESOL (Teaching English to Speakers of Other Languages) as well as in TEFL (Teaching English as a Foreign Language).
Style	The class meets once a week for 90-minutes in the language lab. The teacher will use the textbook as a basis and supplement it with other authentic material. The teacher will introduce various web applications including CALLthat will help with the aims of this class
Notice	All assignments should be submitted by the deadline. Make-up examinations due to absence will ONLY be given with a doctor's note or an "excused" absence.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Day 10 Review. (Days 6~9) / Speaking 4 Pair Interview.	Day 10, related speaking, listening, reading exercises./ Speaking 4.To be announced.
		2nd	Day 11."Advertisements" / Speaking 4 (cont.)	Day 11, related speaking, listening, reading exercises. Speaking 4, preparation.
		3rd	Day 12 "Magazines, Newspaper, Media / Speaking 4, Pair interviews.	Day 12, related speaking, listening, reading exercises / pair interviews.
		4th	Day 13 "Negotiations and Contracts"	Day 13, related speaking, listening, reading exercises
		5th	Day 14 "Finance, Accounting, Compensation"	Day 14, related speaking, listening, reading exercises
		6th	Day 15 "Days 11~14 Review"	Day 15, related speaking, listening, reading exercises
		7th	Test 3.	Days 11~15 test.
		8th	Christmas movie. Writing 1. "Writing a movie report"	Christmas movie. Writing 1. "Writing a movie report"
	4th Quarter	9th	Day 16 "Sales and Marketing"	Day 16, related speaking, listening, reading exercises,
		10th	Day 17 "Manufacture and Production"	Day 17, related speaking, listening, reading exercises,
		11th	Speaking 5, "Our Unicorn"	Speaking 5, Explanation and preparation
		12th	Speaking 5 (cont.) Presentations	Speaking 5 (cont.) Presentations
		13th	Day 18 "Merchandise"	18, related speaking, listening, reading exercises,

		14th	Day 19 "Repair, Maintenance, Problems" / Day 20 "Review, Days 16~19"	19, related speaking, listening, reading exercises, / 20, related speaking, listening, reading exercises,
		15th	Test 4.	Days 16~20 test.
		16th	results and consolidation.	results and consolidation.

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	70	20	0	0	0	10	100
基礎的能力	70	20	0	0	0	10	100
専門的能力	0	0	0	0	0	0	0
分野横断的能力	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced English Workshop

Course Information

Course Code	0009	Course Category	General / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Nishihara Masahiro		

Course Objectives

1. To learn to think by the rules of the English language.
2. To synthesize all knowlegde learnt so far and to learn to use it in a comprehensive and creative way.
3. To master the basic rules on academic writing, including punctuation.
4. To learn to choose between the formal and the informal usage in accordance with the context in which writing is taking place.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Accurately understand and use grammatical knowlegde to create accurate sentences expressing ideas.	Understand and use grammatical knowlegde to create sentences expressing ideas.	Inaccurate gramatical understanding and use of it, not intelligible enough in production
Evaluation 2	Effective presentation in writing using accurate punctuation and conjunctions	Awareness for effective and accurate use of punctuation and conjunctions	Inability to use punctuation or conjunctions with insufficient attention to them
Evaluation 3	Ability to express ideas with the accurate selection between formal and informal usage.	Awareness for language register between formal and informal usage in writing	Insufficient attention to social register between formal and informal usage in writing

Assigned Department Objectives

Teaching Method

Outline	This course aims for students' applied abilities of English, particularly in the area of writing, in order to help create accurate academic writing, including abstracts and scientific papers. Students are expected to master such functional aspects of English grammatical items as verb tenses, conjunctions, the articles, prepositions, modal auxiliaries, as well as punctuation and formal and informal usage.
Style	Classes are conducted based on students' active engagements with the questions in the textbook, and questions and answers-activities between your teacher and students, or between students.
Notice	Students are required to be fully prepared for class, having completed 7-8 pages of homework assignments every week. Students other than International Bisiness are required to have a score of higher than 400 on the TOEIC Test in order to register in this course.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	'should', 'ought to', 'must'	A clear distinction of the meaning between the modal auxiliries and accurate use of them in context
		2nd	'must', 'don't have to' vs 'mustn't', 'may'	A clear distinction of the meaning between the modal auxiliries and accurate use of them in context
		3rd	A combination of 'have to' and 'may', 'should', or 'must', 'can'	A clear distinction of the meaning between the modal auxiliries and accurate use of them in context
		4th	'could have', Summary (1), 'need' vs 'dare'	A clear distinction of the meaning between the modal auxiliries and accurate use of them in context
		5th	'had better (best)', 'would like', 'would rather', 'would sooner', 'be supposed to', 'have got', 'have got to'	A clear distinction of the meaning between the modal auxiliries and accurate use of them in context
		6th	Summary (2), Future-possible real conditionals, 'should' in a conditional clause	A clear understanding of the meaning of future-possible conditionals and its accurate grammatical construction in context
		7th	Present-real conditionals, 'If' as a 'when', Unreal-present conditionals, unreal-past conditionals	A clear understanding of the meaning of unreal-present / past conditionals and its accurate grammatical construction in context
		8th	Facts and habituality in the past, 'used to', 'would', 'as if', 'as though'	A clear understanding of the meaning of 'habituality' in the past and its accurate selection in context
	2nd Quarter	9th	Simple infinitives, perfect infinitives	A clear understanding of the difference in meaning between simple and perfect infinitives and its accurate selection in context
		10th	Gerunds as a subject, idioms using 'go',	An understanding of the Gerunds as an alternative as a subject
		11th	Gerunds as an object of a verb (1)	An accurate grammatical construction of gerunds as an object
		12th	Gerunds as an object of a verb (2)	An accurate grammatical construction of gerunds as an object

		13th	Gerunds as an object of a prepostion	An accurate grammatical construction of gerunds as a preposition
		14th	Perfect gerunds	A clear understanding of the difference in the use of perfect and simple gerunds and its accurate grammatical construction in context
		15th	Final examinations	Review all that have been covered in class
		16th	Reflection, Questionnaire	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	100	0	0	0	100	0	200
Basic Ability	0	0	0	0	0	0	0
Technical Ability	100	0	0	0	100	0	200
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Shock Compression and Blast Wave

Course Information

Course Code	0001	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	Materials will be prepared by the instructor.		
Instructor	Homae Tomotaka		

Course Objectives

1. Reexplain of Impact phenomena, studied in Physics and/or strength of materials, from point of view of shock physics. Calculation of impact parameters.
2. Fundamental theory, analysis and application for shock compression of solids. Calculation of required parameters, such as shock pressure.
3. Understanding of effect around explosion of high energy materials, such as high explosives, and mitigation of damages by the explosion. Calculation of required parameters, such as scaled distance.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Can explain phenomena clearly and obtain calculated results immediately.	Can explain phenomena and obtain calculated results.	Can not explain phenomena and can not obtain calculated results.
Evaluation 2	Can explain phenomena clearly and obtain calculated results immediately.	Can explain phenomena and obtain calculated results.	Can not explain phenomena and can not obtain calculated results.
Evaluation 3	Can explain phenomena clearly and obtain calculated results immediately.	Can explain phenomena and obtain calculated results.	Can not explain phenomena and can not obtain calculated results.

Assigned Department Objectives

Teaching Method

Outline	Shock phenomenon is unique, because it is single and high-speed phenomenon. As it can provide non-equilibrium and extremely high temperature and high pressure field relatively easily, shock phenomenon often apply to engineering. This lecture will start from fundamental impact phenomena, learned in fundamental physics and strength of materials classes. Then, fundamental theory, analysis and application for shock compression of solids, induced by hypervelocity impact, will be introduced. In latter part of this course, effect around explosion of high energy materials, such as high explosives, and mitigation of damages by the explosion will be discussed. As most of the materials are written in English, students can empirically learn how to read English materials.
Style	The class consists of lecture, reading English materials, teaching each other, and solving exercises etc. Students are required to work on home work every week.
Notice	A knowledge of college-level physics is a prerequisite for this lecture. ［制御］B4, ［JABEE基準1(2)］d(3) The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Orientation Fundamental impact phenomena I	Understanding of course structure, evaluation, learning method. Understanding of elastic and non-elastic collision.
		2nd	Fundamental impact phenomena II	Understanding of strain energy and shock stress.
		3rd	Fundamental impact phenomena III	Understanding of other issues related fundamental impact phenomena.
		4th	Shock compression of solids by pypervelcoty impact	Understanding of shock compression of solids by pypervelcoty impact.
		5th	One dimensional analysis of shock compressed solids I	Understanding of one dimensional analysis of shock compressed solids using conservation laws of mass, momentum, and energy.
		6th	One dimensional analysis of shock compressed solids II	Application of theory, learned in 5th week, to realistic problem.
		7th	Hugoniot compression curve	Understanding of relation between density and pressure od shock compressed solids.
		8th	Impedance matching method	Analysis of shocked state by Hugoniot compression curve and impedance matching method.
	2nd Quarter	9th	Typical experimental method of shock compression and its results	Understanding of typical experimental method of shock compression and its results.
		10th	Explosion and type of explosives	Understanding of Explosion and type of explosives.
		11th	Effect of blast waves and fragments around explosion	Understanding of effect and damage of blast waves and fragments around explosion.
		12th	Experimental method for evaluation of blast-wave effect	Understanding of experimental method for evaluation of blast-wave effect.
		13th	Mitigation of blast waves	Understanding of mitigation method for blast waves and damages.

		14th	Experimental method for evaluation of fragments	Understanding of experimental method for evaluation of high velocity fragments.
		15th	Final examination	Final examination.
		16th	Review of final examination	Review of final examination.

Evaluation Method and Weight (%)

	Examination	Homework	Total
Subtotal	50	50	100
Basic Ability	0	0	0
Technical Ability	50	50	100

Toyama College	Year	2020	Course Title	Thesis Research I

Course Information

Course Code	0002	Course Category	Specialized / Compulsory
Class Format	Experiment / Practical training	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi		

Course Objectives

Following three elements are educated as encouraging abilities of a research and development.
1. Students can suggest, design and construct related systems such as software, hardware and network with considering a social background.
2. Students can solve problems by their fundamental and specific knowledge.
3. Students can present and discuss their research theme.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
(Research work 1) Backgrounds, purposes, methods, contents, results, discussion and future tasks are included.	All elements are included.	Acceptable contents.	Lacks of contents.
(Research work 2) Expression of statement, figures and tabular.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 3) The expression of backgrounds and purposes.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 4) Methodology	Acceptable methodologies.	Almost acceptable methodologies.	Unacceptable methodologies.
(Research work 5) Logical Structure	Reasonable logical structure.	Almost reasonable structure.	Not reasonable logical structure.
(Research work 6) Critical Thinking	Reasonable discussion.	Almost reasonable discussion.	Unacceptable discussion.
(Research work 7) Validity of results	Cleared and valid results are expressed.	Almost valid results are expressed.	Unacceptable results.
(Research work 8) Future works	Valid future plan and schedule. Clear solutions are provided.	Acceptable plan and schedule.	Unacceptable plan.
(Presentation 1) (1)Background (2)Purpose (3)Methodology (4) Contents (5) Result and Discussion	Reasonable structure.	Acceptable structure	Unacceptable structure
(Presentation 2) Suitable expression of sentences and figures.	Reasonable sentences and figures.	Acceptable sentences and figures.	Unacceptable sentences and figures
(Presentation 3) Logical structure	Reasonable logical structure	Almost reasonable structure	Not reasonable logical structure

Assigned Department Objectives

Teaching Method

Outline	For special research topics related to the same control information system through major departments 1 and 2 years, under the supervisor, acquire the method of literature survey, experimental / theoretical analysis method, evaluation method, and nurture research promotion ability. In line with each concrete theme, increase the comprehensive research capability through investigation and education of required knowledge necessary for application, application to problem solving, analysis and evaluation of the results obtained. We will summarize and present the research results we have worked on in Special Study I. [Control] C3 [JABEE Standard 1 (2)] (f) (g)
Style	In each laboratory, conduct research under the guidance of the main deputy supervisor advisor. Classification method, multiple faculty charge method
Notice	To undertake subjectively and systematically on issues under the supervisor. One chief examiner and two sub-investigators comprehensively evaluated the content of the thesis, the contents of the presentation and the status of activities based on the evaluation criteria table (total table instructions), with a paper evaluation of 50%, a presentation evaluation of 30%, an effort status of 20% , Pass score over 60 points.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Special Research	Determination of special research topics and academic advisors
		2nd	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)

		3rd	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		4th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		5th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		6th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		7th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		8th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
	2nd Quarter	9th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		10th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		11th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		12th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		13th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		14th	Special Research	Study in the field of specialization necessary for research subject (Survey, seminar, assignment setting, planning, implementation, report)
		15th	Mid term presentation	Review of studies / announcements by chief and sub-investigations
		16th	Score checked	

Evaluation Method and Weight (%)

	Chief and sub-investigators						Total
Subtotal	100	0	0	0	0	0	100
Research Paper	30	0	0	0	0	0	30
Presentation	50	0	0	0	0	0	50
Effort	20	0	0	0	0	0	20

Toyama College	Year	2020	Course Title	Thesis Research I

Course Information

Course Code	0003	Course Category	Specialized / Compulsory
Class Format	Experiment / Practical training	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi		

Course Objectives

Following three elements are educated as encouraging abilities of a research and development.
1. Students can suggest, design and construct related systems such as software, hardware and network with considering a social background.
2. Students can solve problems by their fundamental and specific knowledge.
3. Students can present and discuss their research theme.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
(Research work 1) Backgrounds, purposes, methods, contents, results, discussion and future tasks are included.	All elements are included.	Acceptable contents.	Lacks of contents.
(Research work 2) Expression of statement, figures and tabular.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 3) The expression of backgrounds and purposes.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 4) Methodology	Acceptable methodologies.	Almost acceptable methodologies.	Unacceptable methodologies.
(Research work 5) Logical Structure	Reasonable logical structure.	Almost reasonable structure.	Not reasonable logical structure.
(Research work 6) Critical Thinking	Reasonable discussion.	Almost reasonable discussion.	Unacceptable discussion.
(Research work 7) Validity of results	Cleared and valid results are expressed.	Almost valid results are expressed.	Unacceptable results.
(Research work 8) Future works	Valid future plan and schedule. Clear solutions are provided.	Acceptable plan and schedule.	Unacceptable plan.
(Presentation 1) (1)Background	Reasonable structure.	Acceptable structure	Unacceptable structure
(Presentation 2) Suitable expression of sentences and figures.	Reasonable sentences and figures.	Acceptable sentences and figures	Unacceptable sentences and figures
(Presentation 3) Logical structure	Reasonable logical structure	Almost reasonable structure	Not reasonable logical structure

Assigned Department Objectives

Teaching Method

Outline	For special research topics related to the same control information system through major departments 1 and 2 years, under the supervisor, acquire the method of literature survey, experimental / theoretical analysis method, evaluation method, and nurture research promotion ability. In line with each concrete theme, increase the comprehensive research capability through investigation and education of required knowledge necessary for application, application to problem solving, analysis and evaluation of the results obtained. We will summarize and present the research results we have worked on in Special Study I. [Control] C3 [JABEE Standard 1 (2)] (f) (g)
Style	In each laboratory, conduct research under the guidance of the main deputy supervisor advisor. Classification method, multiple faculty charge method
Notice	To undertake subjectively and systematically on issues under the supervisor. One chief examiner and two sub-investigators comprehensively evaluated the content of the thesis, the contents of the presentation and the status of activities based on the evaluation criteria table (total table instructions), with a paper evaluation of 50%, a presentation evaluation of 30%, an effort status of 20% , Pass score over 60 points.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		2nd	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)

		3rd	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		4th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		5th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		6th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		7th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		8th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
	4th Quarter	9th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		10th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		11th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		12th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		13th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		14th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		15th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)
		16th	Special Research	Study in the field of specialization necessary for research subject (Survey, Planning, Implementation, System integration, testing, evaluation, report)

Evaluation Method and Weight (%)

	Scoring by one supervisor and two sub-supervisor	Total
Subtotal	100	100
Report	30	30
Presentation	50	50
Effort	20	20

Toyama College	Year	2020	Course Title	Advanced Communication Engineering

Course Information

Course Code	0004	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	ワイヤレス通信工学　オーム社		
Instructor	Oguma Hiroshi		

Course Objectives

Through this course, understanding of the following will be facilitated.
(1)Link budget design of wireless access
(2)Fundamental technology for Wireless communication system
(3)Fundamental technology for Broadcasting system

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Link budget design	Clearly understands the link budget design of wireless access in detail.	Ability to explain the overview and concept of link budget design of wireless access.	Unable to explain the link budget design of wireless access.
Wireless system	Clearly understands the technology (modulation, frequency, MIMO, etc) of cellulor system, wireless LAN and wireless PAN in detail.	Ability to explain the overview and concept of cellulor system, wireless LAN and wireless PAN.	Unable to explain the the technology of cellulor system, wireless LAN and wireless PAN.
Broadcasting system	Clearly understands the technology (modulation, frequency, OFDM, etc) of broadcastiong system in detail.	Ability to explain the overview and concept of broadcasting system.	Unable to explain the the technology of broadcasting system.

Assigned Department Objectives

Teaching Method

Outline	Wireless networking is one of the foundational technologies in IoT. In this course, you will learn about the principles and fundamental techniques required for designing and implementing wireless network systems.
Style	Student masters this course through lectures and seminar.
Notice	The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	Guidance: Discuss the goals and structure of this course
		2nd	Propagation modeling for wireless access	Learn the propagation modeling (free space equation and Okumura-Hata, etc.)for wireless access
		3rd	Link budget design of wireless access	Learn the link budget design of wireless access
		4th	Digital modulation and demodulation	Learn the digital modulation and demodulation technology.
		5th	Channel fading	Learn the channel model with AWGN and various fading.
		6th	Multiplexing	Learn the multiplexing and duplex technology for wireless network.
		7th	Spread spectrum	Learn the spread spedtrum technology for wireless network and navigation satellite system.
		8th	OFDM	Learn the OFDM(Orthogonal frequency division multiplexing) technology for wireless network.
	2nd Quarter	9th	MIMO	Learn the MIMO(Multi Input Multi Output) technology.
		10th	Cellulor system	Learn the cellulor system.
		11th	Wireless LAN	Learn the IEEE802.11 and standarization.
		12th	Wireless PAN	Learn the IEEE802.15 and standarization.
		13th	Beyond Wireless system	Learn the HetNet and 5G system.
		14th	Broadcasting system	Learn the digital broadcasting technology.
		15th	Final examination	Final examination.
		16th	Summary	Summarize the study content and confirm grades.

Evaluation Method and Weight (%)

	Examination	Report	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	80	20	0	0	0	0	100
Basic Ability	10	0	0	0	0	0	10

Technical Ability	70	20	0	0	0	0	90
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Instrument and Control Programming

Course Information

Course Code	0005	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Mizumoto Iwao		

Course Objectives

The lecture of purpose is design the electronics circuits for measurement, manufacturing of measurement system.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
Evaluation 1	Design of micro electrrcal circuits	discription of micro electronics circuit	non discription
Evaluation 2	Design of oparational amplifier	discription of operational amplifier	non discription
Evaluation 3	Design lock in amplifier	discription of lock in amplifier	non discription

Assigned Department Objectives

Teaching Method

Outline	The lecture of purpose is design the electronics circuits for measurement, manufacturing of measurement system.
Style	
Notice	

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Fundamental bias circuits	Fundamental bias circuits
		2nd	Fundamental bias circuits	Fundamental bias circuits
		3rd	Fundamental bias circuits	Fundamental bias circuits
		4th	Fundamental bias circuits	Fundamental bias circuits
		5th	Voltage Divider Transistor Biasing	Voltage Divider Transistor Biasing
		6th	Voltage Divider Transistor Biasing	Voltage Divider Transistor Biasing
		7th	Voltage Divider Transistor Biasing	Voltage Divider Transistor Biasing
		8th	Fundamental of operational amplifier	Fundamental of operational amplifier
	2nd Quarter	9th	Fundamental of operational amplifier	Fundamental of operational amplifier
		10th	Fundamental of operational amplifier	Fundamental of operational amplifier
		11th	Fundamental of operational amplifier	Fundamental of operational amplifier
		12th	Design operational amplifier	Design perational amplifier
		13th	Design operational amplifier	Design operational amplifier
		14th	Design of Lock in amplifier	Design of Lock in plifier
		15th	Assemble of Lock in amplifier	Assemble of Lock in plifier
		16th	Assemble of Lock in amplifier	Assemble of Lock in amplifier

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	200	0	0	0	0	0	200
Basic Ability	100	0	0	0	0	0	100
Technical Ability	50	0	0	0	0	0	50
Interdisciplinary Ability	50	0	0	0	0	0	50

Toyama College	Year	2020	Course Title	Quantum Electronics

Course Information

Course Code	0006	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Yoshii Yotsumi		

Course Objectives

Through this course, understanding of the following will be facilitated.
1. Electromagnetic theory and propagation of rays and beams.
2. Interaction of radiation and atomic systems.
3. Theory of laser oscillation and laser devices.
4. Detection of optical radiation and properties of semiconductor photodiodes.
5. Laser applications in sensors and communications.

1.光の基本的な性質について説明できる。
2.異なる媒質中での光の性質と光と物質の相互作用について説明できる。
3.レーザの構造と動作原理を説明できる。
4.受光素子の構造と動作原理を説明できる。
5.光エレクトロニクスが応用されている装置について説明できる。

Rubric

	理想的な到達レベルの目安	標準的な到達レベルの目安	未到達レベルの目安
評価項目1	Clearly understands properties of light	Ability to explain properties of light	Unable to explain properties of light
評価項目2	Clearly understands interaction of radiation and atomic systems	Ability to explain interaction of radiation and atomic systems	Unable to explain interaction of radiation and atomic systems
評価項目3	Clearly understands operating principles and the structure of diode lasers	Ability to explain operating principles and the structure of diode lasers	Unable to explain operating principles and the structure of diode lasers
評価項目4	Clearly understands operating principles and the structure of photon detectors	Ability to explain operating principles and the structure of photon detectors	Unable to explain operating principles and the structure of photon detectors
評価項目5	Clearly understands optoelectronics and laser application devices	Ability to explain optoelectronics and laser application devices	Unable to explain optoelectronics and laser application devices

Assigned Department Objectives

Teaching Method

Outline	This course explores the fundamentals of optoelectronic phenomena and devices based on classical and quantum properties of radiation. Fundamentals include: Maxwell's electromagnetic waves, resonators and beams, classical ray optics and optical systems, quantum theory of light, matter and its interaction, lasers with continuous wave generation, semiconductor optoelectronics. Optoelectoronics and laser applications are also introduced.
Style	For the purpose of understanding quantum electronics, lectures and exercises facilitate the learning of principles and examples. MIT Open Courseware videos are also used. 1.Understanding Lasers and Fiberoptics 2.Demonstrations in Laser Fundamentals 3.Demonstrations in Physical Optics
Notice	

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance ガイダンス イントロダクション	Guidance: Discuss the goals and structure of this course 量子（光）エレクトロニクスについて概説できる
		2nd	Wave optics 波の基本的性質	Relation between wave optics and ray optics 波（光）の基本的な性質を説明できる
		3rd	Electromagnetic theory of light 光と電磁波	Maxwell's equations and wave equation マクスウェル方程式から波動方程式を導出できる
		4th	Polarized light 偏光	Polarization of light, reflection and refraction Polarization devices 偏光の基本的な性質を説明できる
		5th	Optical wave guides and fibers 光導波路と光ファイバ	Propagation of optical beams in fibers 光導波路と光ファイバの原理を説明できる
		6th	Lasers(1) レーザ光	Characteristics of the laser output レーザー光の性質を説明できる
		7th	Lasers(2) レーザ光の発生（1）	Interactions of photon with atoms Laser amplifier 光と物質の相互作用とレーザー光の発生について説明できる
		8th	Lasers(3) レーザ光の発生（2）	Theory of laser oscillation Optical resonators 光共振器について説明できる

	4th Quarter	9th	Semiconductor photon sources(1) 発光素子の動作原理と特性（１）	Light emitting diodes Semiconductor laser amplifiers Structures of diode laser 半導体レーザの基本構造と動作原理を説明できる
		10th	Semiconductor photon sources(2) 発光素子の動作原理と特性（２）	Advanced semiconductor lasers: DFB, VECSEL, etc 特徴的な半導体レーザの原理について説明できる（FP型, DFB型）
		11th	Semiconductor photon sources(3) 発光素子の動作原理と特性（３）	Characteristics of diode laser 半導体レーザーの特性について説明できる
		12th	Semiconductor photon detectors(1) 受光素子の動作原理と特性（１）	Theory of photodiodes and structure フォトダイオードの構造と動作原理を説明できる
		13th	Semiconductor photon detectors(2) 受光素子の動作原理と特性（２）	Characteristics of photodiode フォトダイオードの特性について説明できる
		14th	Optoelectronics and laser applications(1) 光エレクトロニクスの応用（１）	Optical disc drives 光ディスク装置について説明できる
		15th	Optoelectronics and laser applications(2) 光エレクトロニクスの応用（２）	Optical communications over optical fiber 光ファイバ通信方式について説明できる
		16th		

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	80	0	0	0	20	0	100
基礎的能力	40	0	0	0	10	0	50
専門的能力	40	0	0	0	10	0	50
分野横断的能力	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Technical English

Course Information

Course Code	0010	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	Although not specified, reference is made to Advanced Engineering Mathematics (John Willey & Sons. Inc.) and mechanical industrial English (Corona Company).		
Instructor	Moananu Charlton,Matoba Ryuichi,Yoshii Yotsumi,Nakatani Toshihiko,Kyoden Tomoaki		

Course Objectives

You are going to read practical science and technology English sentences, accumulate experience of technical English composition and English presentation.

Rubric

	理想的な到達レベルの目安	標準的な到達レベルの目安	未到達レベルの目安
Evaluation item 1	You can express yourself with accurate English sentences and words.	Even if there is some mistake what you want to say can be expressed in English words and words.	You can not express yourself in English words and words.
Evaluation item 2	You can express your idea effectively.	You can express your idea even if there is some error.	You can not express your own idea.
Evaluation item 3	You can grasp the contents accurately by watching English videos about Technology.	By watching English videos on Technology, you can grasp the contents even if there are some errors.	You can not grasp the contents by watching English videos about Technology.

Assigned Department Objectives

Teaching Method

Outline	English, foreign languages, technical terms, grammar, contents concerning understanding of different cultures Each faculty member advances classes in an omnibus format.
Style	Each faculty teacher conducts classes in a manner suitable for each field of responsibility. omnibus format.
Notice	Each teacher in charge evaluates based on quizzes and submission tasks for each class of the omnibus method, and takes the arithmetic average and sets the final evaluation. More than 60 points are necessary to satisfy the evaluation criteria of JABEE.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Technical English Listening and Dictation -1	Listening with familiar video on science technology and its summary in Japanese
		2nd	Technical English Listening and Dictation -2	Listening with familiar video on science technology and writing in English
		3rd	Technical English Listening and Dictation -3	Corrected English and Japanese in easy-to-understand manner while comparing Japanese summary with English translation in English
		4th	Technical English Listening and Dictation -4	Corrected English and Japanese in easy-to-understand manner while comparing Japanese summary with English translation in English
		5th	Technical English Listening and Dictation -5	Corrected English and Japanese in easy-to-understand manner while comparing Japanese summary with English translation in English
		6th	English expression in mathematics and physics -1	Professors will teach English expressions such as numbers, mathematical expressions and graphs that require accurate representation and interpretation in the field of science and technology, subjects in English mathematics primer and the like.
		7th	English expression in mathematics and physics -2	Professors will teach English expressions such as numbers, mathematical expressions and graphs that require accurate representation and interpretation in the field of science and technology, subjects in English mathematics primer and the like.
		8th	English expression in mathematics and physics -3	You learn about the fundamentals of science and technology expression in physics by comparing understanding content and its English expression with subjects of classical mechanics such as Newton's dynamics law which the student fully understands.
	4th Quarter	9th	English expression in mathematics and physics -4	You learn about the fundamentals of science and technology expression in physics by comparing understanding content and its English expression with subjects of classical mechanics such as Newton's dynamics law which the student fully understands.

		10th	English expression in mathematics and physics -5	You learn about the fundamentals of science and technology expression in physics by comparing understanding content and its English expression with subjects of classical mechanics such as Newton's dynamics law which the student fully understands.
		11th	Effective Presentation	Introduce a method to transmit research contents in as simple English as possible
		12th	How to explain tables and graphs	How to explain tables and graphs in English etc. How to express in a research presentation
		13th	Research summary Slide creation	You drop my own research into one punch painting and present it in English
		14th	Presentation in English 4	You will further explain the presentation in English.
		15th	Presentation in English 5	You will further explain the presentation in English.
		16th	Comprehensive evaluation · Grading confirmation	We will evaluate according to the quizzes for each class of the omnibus method and the subjects to be submitted, so we will not conduct final exams.

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	0	150	30	30	30	60	300
基礎的能力	0	50	10	10	10	20	100
専門的能力	0	50	10	10	10	20	100
分野横断的能力	0	50	10	10	10	20	100

Toyama College	Year	2020	Course Title	Advanced Business Strategy

Course Information

Course Code	0011	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	Built to Last: Successful Habits of Visionary Companies, Nikkei BP		
Instructor	Miyashige Tetsuya		

Course Objectives

Become to understand the theories of Business Strategy

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
評価項目1	understood the theories of Business Strategy, and application to society	understood the theories of Business Strategy	Did not understand the theories of Business Strategy

Assigned Department Objectives

Teaching Method

Outline	understand the theories of Business Strategy, and application to society
Style	Lectures led by both teacher and students Seminar-style discussion Presentations by students
Notice	

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Course Orientation	Understanding of Course Structure
		2nd	Corporate Goals	Understanding of Corporate Goals
		3rd	Domains (1)	Understanding of Domains(1)
		4th	Domains (2)	Understanding of Domains(2)
		5th	Growth Strategy (1)	Understanding of Growth Strategy(1)
		6th	Growth Strategy (2)	Understanding of Growth Strategy(2)
		7th	Competitive Strategy (1)	Understanding of Competitive Strategy(1)
		8th	Competitive Strategy (2)	Understanding of Competitive Strategy(2)
	4th Quarter	9th	Competitive Strategy (3)	Understanding of Competitive Strategy(3)
		10th	Business Organization (1)	Understanding of Business Organization(1)
		11th	Business Organization (2)	Understanding of Business Organization(2)
		12th	Business Management	Understanding of Business Management
		13th	Corporate Culture	Understanding of Corporate Culture
		14th	Business Ethics	Understanding of Business Ethics
		15th	Final presentations and final paper	Final presentations and final paper
		16th	Review of final paper	Review of final paper

Evaluation Method and Weight (%)

	Exam	Reports	Total
Subtotal	50	50	100
基礎的能力	50	50	100
専門的能力	0	0	0
分野横断的能力	0	0	0

Toyama College	Year	2020	Course Title	Regional Industry

Course Information

Course Code	0012	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	,		

Course Objectives

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
Report	Understanding and having an ability of explaining about 80% of the industrial structure and characteristics of each field within Toyama prefecture.	About 60% of the industrial structure and characteristics of each field within Toyama prefecture can be understood and explained.	Not to explain about 60% of the industrial structure and the characteristics of each field within Toyama prefecture.
Evaluation 2			
Evaluation 3			

Assigned Department Objectives

Teaching Method

Outline	From the company engineer related to manufacturing in Toyama prefecture, learn about the relationship between industry and region and its technology, think about the structure of regional industry from a viewpoint related to each major, and analyze. Make an opportunity to think deeply about the position of expertise and industry, and use it for careers such as career advancement and career advancement and career design.
Style	Invite lecturers from companies belonging to the electromechanical industry association in Toyama Prefecture to receive a lecture. The lecture is in an omnibus format, and submissions of reports about three times and factory tours about one time will be conducted.
Notice	Try to touch social news such as reading newspaper on a daily basis and to be interested in current affairs. Submit a report summarizing the content and analysis of the regional industry, and evaluate the results mainly on the contents of the explanation. A credit rating of 60 points or more is required for unit credentials.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Outline of industry in Toyama Prefecture	It is possible to understand the characteristics of industries in Toyama prefecture, which outlines the industry in Toyama Prefecture
		2nd	Introduction to aluminum industry (1)	Outline of aluminum industry in Toyama prefecture. I can understand the characteristics of the aluminum industry in Toyama Prefecture
		3rd	Introduction to aluminum industry (2)	I will outline the aluminum industry in Toyama Prefecture. I can understand the characteristics of the aluminum industry in Toyama Prefecture
		4th	Introduction to machine tools:	I can understand the characteristics of the machine tool industry in Toyama prefecture that outlines the machine tool industry in Toyama Prefecture
		5th	Aluminum industry / machine tool Conclusion:	About the contents of learning I can understand and explain the characteristics of the aluminum industry / machine tool industry in Toyama prefecture that will investigate and group the industry with group work
		6th	Introduction to electronic equipment (1)	I can understand the characteristics of the electronic parts industry in Toyama prefecture that outlines the electronic parts industry in Toyama prefecture
		7th	Introduction to electronic equipment (2)	I can understand the characteristics of the electronic parts industry in Toyama prefecture that outlines the electronic parts industry in Toyama prefecture
		8th	Introduction to Information industry (1)	Field work of companies in Toyama Prefecture.
	4th Quarter	9th	Introduction to Information industry (2)	Field works of companies in Toyama Prefecture.
		10th	Introduction to Information industry (3)	Understandings for outlines of information industry in Toyama prefecture.
		11th	Introduction to Information industry (4)	Understandings for outlines of information industry in Toyama prefecture.
		12th	Introduction to molds(1)	Understandings for the characteristics of the mold industry in Toyama prefecture.
		13th	Introduction to molds(2)	Understandings for the characteristics of the mold industry in Toyama prefecture.

		14th	Electronic parts / information industry / mold industry industry Summary: We survey and compile industry by group work on what we have learned so far	We can understand and explain the characteristics of Toyama prefecture's electronic parts, information industry and mold industry
		15th	conclusion	
		16th	Grading confirmation, question evaluation questionnaire	

Evaluation Method and Weight (%)

	report	Total
Subtotal	100	100
Presentation	100	100

Toyama College	Year	2020	Course Title	Management of Technology

Course Information

Course Code	0013	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	Distribution		
Instructor	Kiyoshi Takeharu		

Course Objectives

Understanding management and utilization of technology.
Students can get engineering points of view and understanding of technology operations.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Students can properly understand basic MOT.	Students can understand basic MOT.	Students cannot understand basic MOT.
Evaluation 2	Students can properly explain about manufacturing process.	Students can explain about manufacturing process.	Students cannot explain about manufacturing process.
Evaluation 3	Students can explain about practical business of manufacturing in detail.	Students can explain about practical business of manufacturing.	Students cannot explain about practical business of manufacturing.

Assigned Department Objectives

Teaching Method

Outline	The purpose of this class is to get engineering points of view and understanding technology operation for Department of International Business students. Our region has a lot of engineering manufacturing companies. Humanities students also have a chance to get a job in these areas. NIT has strong engineering knowledge as educational resources. This class is based on the resources.
Style	This class uses active learning methods. Furthermore, students need to be able to work with a high level of independence.
Notice	This class requires completion of assignments and preparing presentations for every session.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance.	Significunce of the lecture
		2nd	Background of MOT.	Understanding MOT 1
		3rd	The uncertainly between management and technological development.	Understanding MOT 2
		4th	The basic concept of innovation and knowledge creation.	Understanding MOT 3
		5th	R&D management and market management.	Understanding MOT 4
		6th	Understanding manufacturing flow.	Understanding for munifacturing 1
		7th	Manufacturing technology.	Understanding for munifacturing 2
		8th	Production management	Understanding for munifacturing 3
	2nd Quarter	9th	Internationalization of manufacturing	Understanding for munifacturing 4
		10th	Practice 1.	Practice: Production of prototypes
		11th	Practice 2.	Practice: Production of prototypes
		12th	Practice 3.	Practice: Production of prototypes
		13th	Writing report.	Writing report.
		14th	Preparing presentation.	Preparing presentation.
		15th	Final presentation.	Final presentation.
		16th	Evaluation.	Evaluation.

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	100	0	0	0	0	100
Basic Ability	0	80	0	0	0	0	80
Technical Ability	0	20	0	0	0	0	20
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Information Processing

Course Information

Course Code	0014	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Akiguchi Shunsuke		

Course Objectives

Through this course, understanding of the following will be facilitated.
1. Data processing and analysis with Excel.
2. Creating macros using VBA.
3. Explanation about emotional information processing.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly understands the method of data processing and analysis using Excel in detail.	Ability to explain the overview and concept of data processing and analysis using Excel.	Unable to explain the method of data processing and analysis using Excel.
Evaluation 2	Clearly understands the creation method of macro for VBA in detail.	Ability to explain the overview and concept of macro creation method by VBA.	Unable to explain the creation method of macro for VBA.
Evaluation 3	Clearly understands the method of emotional information processing in detail.	Ability to explain the overview and concept of emotional information processing method.	Unable to explain the method of emotional information processing.

Assigned Department Objectives

Teaching Method

Outline	In this course, you will learn about the principles and fundamental techniques required for data processing and analysis. To understand data processing and analysis method, macro creation method and emotional information processing.
Style	Student masters this course through lectures and seminar.
Notice	The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	Guidance: Discuss the goals and structure of this course.
		2nd	Information processing using computer -1-	Learn the data processing by Excel
		3rd	Information processing using computer -1-	Learn the data analysis by Excel
		4th	Information processing using computer -2-	Learn the programming method
		5th	Information processing using computer -2-	Learn the programming method
		6th	Information processing using computer -3-	Introduction for Excel macro
		7th	Information processing using computer -3-	Create a macro using VBA
		8th	Information processing using computer -3-	Create a macro using VBA
	2nd Quarter	9th	Information processing using computer -3-	Create a macro using VBA
		10th	Exercise	Exercise
		11th	Emotional information processing method -1-	Introduction to the trends in the emotional information processing method.
		12th	Emotional information processing method -2-	Learn about the details of the emotional information processing method.
		13th	Emotional information processing method -3-	Learn about designing and implementing the emotional information processing method.
		14th	Exercise	Exercise
		15th	Final Examination	Final Examination
		16th	Checking the Final Evaluation	Checking the Final Evaluation

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	70	0	0	0	30	0	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	70	0	0	0	30	0	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Object-oriented Programing

Course Information

Course Code	0015	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Hayase Yoshikazu		

Course Objectives

The lecture aims to understand the object-oriented basic concepts and analysis with UML.
1. Understand the basic object-oriented concepts.
2. Understand UML diagrams for object-oriented development.
3. Understand for object-oriented analysis with UML.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Describe the basic object-oriented concepts correctly.	Understand the basic object-oriented concepts.	Does not understand the basic object-oriented concepts.
Evaluation 2	Can draw UML diagrams for object-oriented development correctly.	Understand UML diagrams for object-oriented development.	Does not understand UML diagrams for object-oriented development.
Evaluation 3	Can object-oriented analysis with UML correctly.	Understand for object-oriented analysis with UML.	Does not understand for object-oriented analysis with UML.

Assigned Department Objectives

Teaching Method

Outline	Lecture on the basic object-oriented concepts. Perform exercises for object-oriented analysis with UML.
Style	Lecture and exercise
Notice	Require the score points of 60 or more to reach the evaluation standard of JABEE.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Software Engineering Basics	Understand the basic knowledge of the software development cycle.
		2nd	Introduction to Object-Oriented Design	Understand the basic knowledge of the Object-Oriented Design.
		3rd	Classes basics	Understand the basic knowledge of the Classes.
		4th	Inheritance, Abstract Classes	Understand about Inheritance and Abstract Classes.
		5th	Introduction to Object-Oriented Analysis	Understand the basic knowledge of the Object-Oriented Analysis.
		6th	Encapsulation, Information Hiding,Unit Testing	Understand about Encapsulation, Information Hiding, Unit Testing.
		7th	Creation of Team Project	Can propose the tiny team project.
		8th	Introduction to Design Patterns	Understand the basic knowledge of the Design Patterns for the Object-Oriented.
	4th Quarter	9th	Requirements Analysis with UML: The Use Case Diagram	Understand a Use Case Diagram for a Requirements Analysis.
		10th	Requirements Analysis with UML: The Class Diagram	Understand a Class Diagram for a Requirements Analysis.
		11th	Requirements Analysis with UML: The Sequence Diagram	Understand a Sequence Diagram for a Requirements Analysis.
		12th	Function model with UML: The Activity Diagram	Understand an Activity Diagram for a Function model.
		13th	Static model with UML: The Deployment Diagram	Understand a Deployment Diagram for a Static model.
		14th	Dynamic model with UML: The Communication Diagram	Understand a Communication Diagram for a Dynamic model.
		15th	Final Exam	Confirm the degree of understanding of the basic object-oriented concepts.
		16th	Explanation of Final Exam	Explanation of answer example and returning the final exam.

Evaluation Method and Weight (%)

	Examination	Portfolio	Total
Subtotal	70	30	100
Basic Ability	60	20	80
Technical Ability	10	10	20

Toyama College	Year	2020	Course Title	Advanced Computational Engineering

Course Information

Course Code	0016	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	CG Simulation based on CIP method in Java		
Instructor	Furuyama Shoichi		

Course Objectives

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Advection Equation	Explanation for phenomena and difficulty of advection equation is explained.	Understanding of advection equation.	Lack of understanding of advection equation.
Numerical Simulation for Advection Equation	Explaining of numerical diffusion and oscillation of advection equation and improved by CIP method.	Showing the numerical diffusion and oscillation.	Lack of understanding of simulation for advection equation.
Application	Computational Fluid Dynamics (CFD) and Electro Magnetic Simulation (EMS) based on CIP method.	Some physics simulation based on CIP method.	Lack of understanding of numerical simulation.

Assigned Department Objectives

Teaching Method

Outline	Target B3, (d)(2) To understand algorithms for derivative equations, differential equations, matrices(c). The programming techniques in C language and numerical simulation including a high speed calculation are studied.(d)(2)
Style	Coding for numerical simulation is main task in each classes. The recognition of credit requires 60 points or more rating. If the final score is 60% or less, students can take ex-examination. The students whose score is more than 60% in ex-examination is 60%.
Notice	Final examination (70%), Coding reports (30%)

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance. Advection Equation.	Introduction for Advection Equation.
		2nd	Descritization for Advection Equation	1st order method (Upwind scheme)
		3rd	Descritization for Advection Equation	2nd order method (Lax-Wendroff method)
		4th	Descritization for Advection Equation	CIP method
		5th	Descritization for Advection Equation	Programming for CIP method
		6th	Higher accuracy	Higher accuracy scheme for CIP method
		7th	Higher accuracy	Programming of Higher accuracy scheme for CIP method.
		8th	Multi Dimension	Two dimensional CIP method
	4th Quarter	9th	Multi Dimension	Programming for two dimensional CIP method
		10th	Application for physics	Electro Magnetic Simulation (EMS)
		11th	Application for physics	Computational Fluid Dynamics (CFD)
		12th	Application for physics	Programming for CFD
		13th	High Performance Computing (HPC)	HPC for numerical simulation
		14th	High Performance Computing (HPC)	GPGPU calculation
		15th	Final Examination	Final Examination
		16th	Checking the Final Evaluation	Checking the Final Evaluation

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	100	100	0	0	0	0	200
Basic Ability	40	40	0	0	0	0	80
Technical Ability	60	60	0	0	0	0	120
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Intelligent Information Processing

Course Information

Course Code	0017	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Akiguchi Shunsuke		

Course Objectives

Through this course, understanding of the following will be facilitated.
・The characteristics of Fuzzy logic, Genetic Algorithm, Reinforcement Learning and Neural Network

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly understands the overview of Fuzzy logic, and displays the ability to make an advanced program containing fuzzy logic.	Ability to explain the overview and concept of Fuzzy logic, and displays the ability to make a program containing fuzzy logic.	Unable to explain the overview and concept of Fuzzy logic.
Evaluation 2	Clearly understands the overview of Genetic Algorithm, and displays the ability to make an advanced program containing Genetic Algorithm.	Ability to explain the overview and concept of Genetic Algorithm, and displays the ability to make a program containing Genetic Algorithm.	Unable to explain the overview and concept of Genetic Algorithm.
Evaluation 3	Clearly understands the overview of Reinforcement Learning, and displays the ability to make an advanced program containing Reinforcement Learning.	Ability to explain the overview and concept of Reinforcement Learning, and displays the ability to make a program containing Reinforcement Learning.	Unable to explain the overview and concept of Reinforcement Learning.
Evaluation 4	Clearly understands the overview of Neural Network, and displays the ability to make an advanced program containing Neural Network.	Ability to explain the overview and concept of Neural Network, and displays the ability to make a program containing Neural Network.	Unable to explain the overview and concept of Neural Network.

Assigned Department Objectives

Teaching Method

Outline	In this course, you will learn about the principles and fundamental techniques required for Soft Computing.To understand Fuzzy logic, Genetic Algorithm, Reinforcement Learning and Neural Network.
Style	Student masters this course through lectures and seminar.
Notice	The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance	Guidance: Discuss the goals and structure of this course.
		2nd	Soft Computing	Learn about the details of the Soft Computing.
		3rd	Fuzzy logic -1-	Learn about the details of the Fuzzy logic.
		4th	Fuzzy logic -2-	Learn about designing and implementing the Fuzzy logic.
		5th	Exercise	Exercise
		6th	Genetic Algorithm -1-	Learn about the details of the Genetic Algorithm.
		7th	Genetic Algorithm -2-	Learn about designing and implementing the Genetic Algorithm.
		8th	Exercise	Exercise
	4th Quarter	9th	Reinforcement Learning -1-	Learn about the details of the Reinforcement Learning.
		10th	Reinforcement Learning -2-	Learn about designing and implementing the Reinforcement Learning.
		11th	Exercise	Exercise
		12th	Neural Network -1-	Learn about the details of the Neural Network.
		13th	Neural Network -2-	Learn about designing and implementing the Neural Network.
		14th	Exercise	Exercise
		15th	Final Examination	Final Examination
		16th	Checking the Final Evaluation	Checking the Final Evaluation

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total

Subtotal	70	0	0	0	30	0	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	70	0	0	0	30	0	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced Applied Mathematics

Course Information

Course Code	0018	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Sakurai Hideto		

Course Objectives

At the completion of this course, students will be able to
1) understand and carry out fundamental calculations on gamma function and beta function correctly.
2) understand and carry out fundamental calculations on Bessel function correctly.
3) understand and carry out fundamental calculations on Legendre function correctly.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly understands, and is able to carry out fundamental calculations on gamma function and beta function.	Ability to understand and carry out fundamental calculations on gamma function and beta function.	Does not display understanding and is unable to carry out fundamental calculations on gamma function and beta function.
Evaluation 2	Clearly understands, and is able to carry out fundamental calculations on Bessel function.	Ability to understand and carry out fundamental calculations on Bessel function.	Does not display understanding and is unable to carry out fundamental calculations on Bessel function.
Evaluation 3	Clearly understands, and is able to carry out fundamental calculations on Legendre function.	Ability to understand and carry out fundamental calculations on Legendre function.	Does not display understanding and is unable to carry out fundamental calculations on Legendre function.

Assigned Department Objectives

Teaching Method

Outline	In this course, students will learn about the special functions, specifically: gamma function, beta function, Bessel function, and Legendre function. And, students will make basics calculations of special functions and basic applications to engineering and physics.
Style	lectures and exercises
Notice	This course uses mathematics learned in previous years. The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	Guidance: Discuss the goals and structure of this course.
		2nd	Basic Calculus -1-	Review the basic of differential and integral calculus.
		3rd	Basic Calculus -2-	Review the basic of differential and integral calculus.
		4th	Therory of function	Review the basic of the theory of a complex function.
		5th	Series expansion	Review the basic of series expansion.
		6th	Gamma function -1-	Learn the definition of the gamma function.
		7th	Gamma function -2-	Learn the basic property of the gamma function.
		8th	Beta function	Learn the definition and basic property of the beta function.
	2nd Quarter	9th	Orthogonal functions	Learn the definition of the orthogonal function.
		10th	Bessel function	Learn the definition and basic property of Bessel function.
		11th	Legendre function -1-	Learn the definition of Legendre function.
		12th	Legendre function -2-	Learn the basic property of Legendre function.
		13th	Differential equations -1-	Learn the basic applications to differential equations.
		14th	Differential equations -2-	Learn the basic applications to differential equations.
		15th	Final examination	Final examination.
		16th	Summary	Summarize the study content and confirm grades.

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	70	0	0	0	30	0	100
Basic Ability	70	0	0	0	30	0	100

Technical Ability	0	0	0	0	0	0	0
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced Applied Physics

Course Information

Course Code	0019	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	reference：「量子力学・統計力学入門」星野公三・岩松雅夫 共著（裳華房）		
Instructor	Ohtake Yukiko		

Course Objectives

The course treats the basis of quantum mechanics and statistical mechanics. On completion of the course the student shall be able to:
1. calculate energy, wave function and existence probability of particles confined in potential wells by solving Schrödinger's equation.
2. calculate transmission and reflection probability of particle incident to step-wise potential barriers by solving Schrödinger's equation.
3. caluculate entropy, temperature and pressure by using microcanonical ensemble.
4. caluculate energy and pressure by using canonical ensemble.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	One can calculate energy, wave function and existence probability of particles confined in potential wells by solving Schrödinger's equation when the well walls have finite height.	One can calculate energy, wave function and existence probability of particles confined in potential wells by solving Schrödinger's equation when the well walls have infinite height.	One cannot calculate energy, wave function and existence probability of particles confined in potential wells by solving Schrödinger's equation.
Evaluation 2	One can calculate transmission and reflection probability of particle incident to potential barriers of finite width by solving Schrödinger's equation.	One can calculate transmission and reflection probability of particle incident to step-wise potential barriers by solving Schrödinger's equation.	One cannot calculate transmission and reflection probability of particle incident to step-wise potential barriers by solving Schrödinger's equation.
Evaluation 3	One can caluculate entropy, temperature and pressure by using microcanonical ensemble in various cases.	One can caluculate entropy, temperature and pressure by using microcanonical ensemble in the cases of free particles and harmonic oscillators.	One cannot caluculate entropy, temperature and pressure by using microcanonical ensemble.
Evaluation 4	One can caluculate energy and pressure by using canonical ensemble in various cases.	One can caluculate energy and pressure by using canonical ensemble in the cases of free particles and harmonic oscillators.	One cannot caluculate energy and pressure by using canonical ensemble.

Assigned Department Objectives

Teaching Method

Outline	The course treats the basis of quantum mechanics and statistical mechanics which are essential to understand modern technology such as nanotechnology and cryogenic technology.
Style	The schedule of this lecture might be slightly changed so that students can easily follow. Student masters this course through lectures and seminar.
Notice	The final grade will be calculated according to the following process: reports(40%) and term-end examination(60%). The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Wave–particle duality	guidance, Compton scattering, photons, de Broglie waves, double-slit experiment
		2nd	Framework of quantum mechanics 1	wave function, Hermitian operator, commutation relation, Schrödinger's equation
		3rd	Framework of quantum mechanics 2	superposition principle, uncertainty principle
		4th	Schrödinger's equation 1	particles confined in potential wells (lecture)
		5th	Schrödinger's equation 2	particles confined in potential wells (seminar)
		6th	Schrödinger's equation 3	particle incident to step-wise potential barriers (lecture)
		7th	Schrödinger's equation 4	particle incident to step-wise potential barriers (seminar)
		8th	Schrödinger's equation 5	particle incident to potential barriers of finite width, harmonic oscillator (lecture)
	2nd Quarter	9th	Statistical mechanics 1	microcanonical ensemble (lecture)
		10th	Statistical mechanics 2	microcanonical ensemble (seminar)
		11th	Statistical mechanics 3	canonical ensemble (lecture)
		12th	Statistical mechanics 4	canonical ensemble (seminar)
		13th	Statistical mechanics 5	grandcanonical ensemble (lecture)
		14th	Statistical mechanics 6	grandcanonical ensemble (seminar)
		15th	Term-end examination	

		16th	Checking the final grade	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	60	0	0	0	40	0	100
Basic Ability	60	0	0	0	40	0	100
Technical Ability	0	0	0	0	0	0	0
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Seminar on Mathematics and Physics Application

Course Information

Course Code	0020	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Ito Nao		

Course Objectives

(1) To understand Fourier transform, Laplace transform and special functions that are rerated to Fourier transform and Laplace transform.
(2) To understand how to solve physical problems using Fourier transform, Laplace transform and special functions.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Can properly understand the definition and the nature of Fourier transform, Laplace transform and special functions, and can solve problems for application.	Can understand the definition and the nature of Fourier transform, Laplace transform and special functions, and can solve fundamental problems.	Cannot understand the definition and the nature of Fourier transform, Laplace transform and special functions, and cannot solve fundamental problems.
Evaluation 2	Can properly use mathematical techniques for physical problems in engineering field, can solve problems for application.	Can use mathematical techniques for physical problems in engineering field, can solve fundamental problem	Cannot use mathematical techniques for physical problems in engineering field, cannot solve fundamental problems.

Assigned Department Objectives

Teaching Method

Outline	Mathematics and physics are important for acquiring technical knowledge of engineering. This course will focus on exercise for calculating equations of mathematics and physics.
Style	In the mathematics part, students will learn about the definition and the nature of Fourier transform, Laplace transform and special functions through exercises. In the physics part, students will learn about classical mechanics, introduction to quantum mechanics and how to apply the mathematical knowledge to them.
Notice	Instead of memorizing the mathematics and the physics knowledge, students are encouraged to study with focus on understanding the basic ways of thinking. Instead of being passive, students are expected to ask questions whenever they do not understand something. Because this course focuses on exercise, students should work on exercise each class in the way of self-learning. The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance and review for mathematics The lecture makes guidance about this course to students. Students review knowledge of mathematics that is needed for solving differential equations treated in this course.	Can solve differential equations treated in this course.
		2nd	Fourier transform (1) Students learn the definition of Fourier series expansion and how to calculate them.	Can explain Fourier series expansion and calculate its fundamental problems.
		3rd	Fourier transform (2) Students learn to solve partial differential equations using Fourier series.	Can solve partial differential equations using Fourier series.
		4th	Fourier transform (3) Students learn the expansion from Fourier series to Fourier transform.	Can explain the expansion from Fourier series to Fourier transform.
		5th	Fourier series and Riemann zeta function Students learn the definition of Riemann zeta function and how to calculate particular values of Riemann zeta function using Parseval's equation that is from Fourier series.	Can explain the definition of Riemann zeta function, and can calculate particular values of Riemann zeta function using Parseval's equation that is from Fourier series.
		6th	Exercise Students work on exercises related to problems from contents so far.	
		7th	Laplace transform (1) Students learn the definition of Laplace transform as expansion from Fourier transform.	Can explain the definition of Laplace transform as expansion from Fourier transform.
		8th	Laplace transform (2) Students learn how to calculate Laplace transform.	Can calculate Laplace transform for fundamental functions.
	4th Quarter	9th	Laplace transform (3) Students learn Laplace inverse transform.	Can calculate Laplace inverse transform for fundamental functions.
		10th	Laplace transform (4) Students learn how to solve differential equations using Laplace transform.	Can solve differential equations using Laplace transform

		11th	Laplace transform (5) Students learn how to solve differential equations from problems of engineering field using Laplace transform.	Can solve differential equations from problems of engineering field using Laplace transform.
		12th	Laplace transform and Gamma function Students learn a formula of Gamma function described from Laplace transform, and how to calculate particular values of Gamma function.	Can explain the definition of Gamma function, and can calculate particular values of Gamma function.
		13th	Application of special functions to problems of physics Students learn to solve problems of physics using Riemann zeta function and Gamma function.	Can solve physics problems using Riemann zeta function and Gamma function.
		14th	Exercise Students work on exercises related to problems from Week 7 to Week 13.	
		15th	Exercise Students work on exercises related to problems from Week 7 to Week 13.	
		16th	Final Exam	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	70	0	0	0	30	0	100
Basic Ability	35	0	0	0	15	0	50
Technical Ability	35	0	0	0	15	0	50

Toyama College	Year	2020	Course Title	Advanced Experiments

Course Information

Course Code	0021	Course Category	Specialized / Compulsory
Class Format	Experiment / Practical training	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi		

Course Objectives

Through efforts to the task, you can understand the expertise and evaluation method concerning system construction. In addition, it can summarize and announce the acquired technical knowledge.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
(Research 1) (1) Background, (2) Objectives, (3) Method / Means, (4) Contents, (5) Obtained Results and Discussion · Does the item include future prospects?	It is an item structure that is not excessive or insufficient and is extremely easy to understand.	It has a reasonable item composition.	There is a big deficiency in item composition.
(Research 2) Is sentence expression and chart display appropriate?	Is sentence expression and diagram display appropriate?	Texts and charts are properly expressed and displayed, but there are problems in some of them, but sentences and charts are generally expressed and displayed in a manner that is appropriate.	Many sentences and charts are inappropriate expressions and displays.
(Research 3) Is the background and purpose properly described?	The background and purpose are described in a very clear manner without excess or deficiency.	The background and purpose are properly described.	The background and purpose are not properly described.
(Research 4) Is the method / means appropriate?	The method / means used / applied is the optimal level.	Alternatively, it is appropriate and new.	The method / means used / applied is not appropriate.
(Research 5) Is logical development appropriate?	Very clearly, the logic is developed.	Although there are some problems, it is almost logically developed.	It is not logically deployed.
(Research 6) Are critical and rational thinking made use of?	Discussion that criticism and rational thought was fully utilized was described.	Critical, consideration based on rational thinking, etc. are described.	There is absolutely no consideration based on critical and rational thinking.
(Study 7) Is the result or the consideration on the way of progress reasonable?	Very clear, reasonable consideration, results have been drawn and described.	Reasonable consideration, results have been drawn and described.	There is no reasonable consideration, results.
(Research 8) Do you have a proposed research plan for the future and have concrete procedures reviewed? Also, are the problems and the like in planning done organized?	The research plan has been adequately studied, and problems in planning are pointed out, and reasonable reasons and solutions are clearly stated.	Research plans are being studied, and the paths and their problems in research execution are shown.	It is not a valid research plan.
(Presentation 1) (1) Background, (2) Objectives, (3) Method / Means, (4) Contents, (5) Results and Discussion Obtained · Items of the Future Perspective included?	There was no excess and deficiency, and it was an item structure which was extremely easy to understand.	It was a reasonable item composition.	There was a big deficiency in item composition.
(Presentation 2) Were the sentence expression of the media and the chart display proper?	Text and charts were expressed and displayed very easily.	Texts and charts were properly expressed and displayed, but there was a problem in some of them, but sentences and charts were almost properly expressed and displayed.	Many sentences and charts were inappropriate expressions and displays.
(Presentation 3) Was logical development of oral presentation reasonable?	Very clearly, the logic had been developed.	It was logically deployed.	

Assigned Department Objectives

Teaching Method

Outline	Design ability to solve social needs by utilizing various science, technology and information, Ability to systematically work and systematically under the given constraints, Ability to work with teams With common constraints, individuals or teams can systematically promote PJs to realize and express creative systems
Style	Students will be given tasks related to system construction, through experiments, solving issues and announcing the results of their work.
Notice	Omnibus format

Course Plan

			Theme	Goals

1st Semester	1st Quarter	1st	Natural Language Processing	Practice of analysis of grammar by computer (CKY method) By CKY method, syntactic analysis can be done if there is dictionary rule of Chomsky standard form.
		2nd	Natural Language Processing	By the exercise chart method of grammar analysis (chart method) by the computer, it is possible to parse if there is a dictionary rule.
		3rd	Natural Language Processing	You can write a procedure to program the CKY method and exercise CY and method of constructing parsing system by CKY method and chart method.
		4th	Natural Language Processing	Exercise in construction of syntactic analysis system by CKY method and chart method (Summary) The advantages of CKY method, chart method, disadvantages, calculation amount, etc. can be discussed.
		5th	System Design	Designed by PSoC PSoC devices and tools can be used.
		6th	System Design	PSoC design Analog block of PSoC device can be used.
		7th	System Design	Designed by PSoC Digital block of PSoC device can be used.
		8th	System Design	Designed by PSoC Microcomputer block of PSoC device can be used.
	2nd Quarter	9th	Learning Algorithms	You can explain the outline of Genetic Algorithm.
		10th	Learning Algorithms	Exercise in construction of Traveling Salesman Problem and Knapsack Problem by using Genetic Algorithm.
		11th	Learning Algorithms	You can present the result of Genetic Algorithm, and can discuss the advantages and disadvantages.
		12th	Numerical Method	OpenCV Foundation (Image Processing) Guidance on Image Processing and Pattern Recognition You can explain the outline of OpenCV.
		13th	Numerical Method	OpenCV foundation (image processing) OpenCV can be installed and basic image processing can be performed.
		14th	Numerical Method	OpenCV application (pattern recognition) It is possible to explain image analysis / pattern recognition by OpenCV.
		15th		
		16th		

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	100	0	0	0	0	100
Basic Ability	0	20	0	0	0	0	20
Technical Ability	0	80	0	0	0	0	80
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced Experiments

Course Information

Course Code	0022	Course Category	Specialized / Compulsory
Class Format	Experiment / Practical training	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi		

Course Objectives

Through challenges, it is possible to understand technical expertise and evaluation methods for the development of systems. And, it is possible to summarize and publish the acquired technical knowledge.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Have a design capability to solve the problem.	Utilizing science and technology and information, it is possible to respond to the demands of society with a wide perspective and advanced expertise.	Have specialized technologies that can meet the demands of society.	Do not have technology that meets the demands of society.
Have the ability to perform the PJ.	The team or the person can systematically advance the PJ in the constraint and express the creative system and express it.	The team or the person can proceed with PJ systematically within the limits.	The team or the person cannot proceed systematically with PJ within the limits.
The ability to resolve issues and publish the results of the efforts.	The background and purpose of the problem, including the trends in the relevant areas, can be understood and easily explained to others.	The background and purpose of the problem are almost understood, and it can be explained easily to the others.	Cannot understand the background or purpose of the problem, and cannot explain it easily to others.

Assigned Department Objectives

Teaching Method

Outline	Through the experiments, the expertise of electronics and information technology will be enhanced. We will also enhance our ability to build systems through our tasks.
Style	Experiments are conducted on 5 themes.
Notice	The credit approval requires more than 60 points.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Instrumentation amplifier training	The instrumentation amplifier can be described and a specific circuit can be assembled.
		2nd	Analog filter (lowpass high pass) exercise	The low-pass (high-pass) filter can be described, and a specific circuit can be assembled.
		3rd	Analog filter (notch) training	The notch filter can be described, and a specific circuit can be assembled.
		4th	Analysis of data analysis using statistical analysis method 1	The statistical analysis method can be explained.
		5th	Analysis of data analysis using statistical analysis method 2	A statistical analysis method can be used to perform basic data analysis.
		6th	Analysis of data analysis using statistical analysis method 3	The statistical analysis method can be used to analyze the application data.
		7th	Hands-On Experience with IoT Devices 1	An IoT device can be explained.
		8th	Hands-On Experience with IoT Devices 2	You can experiment with the basic features of an IoT device.
	4th Quarter	9th	Hands-On Experience with IoT Devices 3	You can experiment with the application functionality of an IoT device.
		10th	Phase sensitive amplifier training	The phase sensitive amplifier can be explained.
		11th	Simulation of the simulation of signals buried in the noise	Signal detection in the noise is possible.
		12th	Training of weak signal detection systems	Detection of a weak signal is possible.
		13th	Data collection and analysis exercise of sensing device 1	The sensing device and the data collection can be explained.
		14th	Data collection and analysis exercise of sensing device 2	The experiment of element technology concerning sensing devices and data collection can be carried out.
		15th	Data collection and analysis exercise of sensing device 3	The sensing device and the data collection system can be constructed.
		16th	Occasional date	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total

Subtotal	0	100	0	0	0	0	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	0	100	0	0	0	0	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced Seminars and Exercises

Course Information

Course Code	0023	Course Category	Specialized / Compulsory
Class Format	Seminar	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi		

Course Objectives

Through efforts to the task, you can understand the expertise and evaluation method concerning system construction. In addition, it can summarize and announce the acquired technical knowledge.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
(Research 1) (1) Background, (2) Objectives, (3) Method / Means, (4) Contents, (5) Obtained Results and Discussion · Does the item include future prospects?	It is an item structure that is not excessive or insufficient and is extremely easy to understand.	It has a reasonable item composition.	There is a big deficiency in item composition.
(Research 2) Is sentence expression and chart display appropriate?	Is sentence expression and diagram display appropriate?	Texts and charts are properly expressed and displayed, but there are problems in some of them, but sentences and charts are generally expressed and displayed in a manner that is appropriate.	Many sentences and charts are inappropriate expressions and displays.
(Research 3) Is the background and purpose properly described?	The background and purpose are described in a very clear manner without excess or deficiency.	The background and purpose are properly described.	The background and purpose are not properly described.
(Research 4) Is the method / means appropriate?	The method / means used / applied is the optimal level.	Alternatively, it is appropriate and new.	The method / means used / applied is not appropriate.
(Research 5) Is logical development appropriate?	Very clearly, the logic is developed.	Although there are some problems, it is almost logically developed.	It is not logically deployed.
(Research 6) Are critical and rational thinking made use of?	Discussion that criticism and rational thought was fully utilized was described.	Critical, consideration based on rational thinking, etc. are described.	There is absolutely no consideration based on critical and rational thinking.
(Study 7) Is the result or the consideration on the way of progress reasonable?	Very clear, reasonable consideration, results have been drawn and described.	Reasonable consideration, results have been drawn and described.	There is no reasonable consideration, results.
(Research 8) Do you have a proposed research plan for the future and have concrete procedures reviewed? Also, are the problems and the like in planning done organized?	The research plan has been adequately studied, and problems in planning are pointed out, and reasonable reasons and solutions are clearly stated.	Research plans are being studied, and the paths and their problems in research execution are shown.	It is not a valid research plan.
(Presentation 1) (1) Background, (2) Objectives, (3) Method / Means, (4) Contents, (5) Results and Discussion Obtained · Items of the Future Perspective included?	There was no excess and deficiency, and it was an item structure which was extremely easy to understand.	It was a reasonable item composition.	There was a big deficiency in item composition.
(Presentation 2) Were the sentence expression of the media and the chart display proper?	Text and charts were expressed and displayed very easily.	Texts and charts were properly expressed and displayed, but there was a problem in some of them, but sentences and charts were almost properly expressed and displayed.	Many sentences and charts were inappropriate expressions and displays.
(Presentation 3) Was logical development of oral presentation reasonable?	Very clearly, the logic had been developed.	It was logically deployed.	

Assigned Department Objectives

Teaching Method

Outline	Design ability to solve social needs by utilizing various science, technology and information, Ability to systematically work and systematically under the given constraints, Ability to work with teams With common constraints, individuals or teams can systematically promote PJs to realize and express creative systems
Style	Students will be given tasks related to system construction, through experiments, solving issues and announcing the results of their work.
Notice	Omnibus format

Course Plan

			Theme	Goals

1st Semester	1st Quarter	1st	Natural Language Processing	Practice of analysis of grammar by computer (CKY method) By CKY method, syntactic analysis can be done if there is dictionary rule of Chomsky standard form.
		2nd	Natural Language Processing	By the exercise chart method of grammar analysis (chart method) by the computer, it is possible to parse if there is a dictionary rule.
		3rd	Natural Language Processing	You can write a procedure to program the CKY method and exercise CY and method of constructing parsing system by CKY method and chart method.
		4th	Natural Language Processing	Exercise in construction of syntactic analysis system by CKY method and chart method (Summary) The advantages of CKY method, chart method, disadvantages, calculation amount, etc. can be discussed.
		5th	System Design	Designed by PSoC PSoC devices and tools can be used.
		6th	System Design	PSoC design Analog block of PSoC device can be used.
		7th	System Design	Designed by PSoC Digital block of PSoC device can be used.
		8th	System Design	Designed by PSoC Microcomputer block of PSoC device can be used.
	2nd Quarter	9th	Learning Algorithms	You can explain the outline of Genetic Algorithm.
		10th	Learning Algorithms	Exercise in construction of Traveling Salesman Problem and Knapsack Problem by using Genetic Algorithm.
		11th	Learning Algorithms	You can present the result of Genetic Algorithm, and can discuss the advantages and disadvantages.
		12th	Numerical Method	OpenCV Foundation (Image Processing) Guidance on Image Processing and Pattern Recognition You can explain the outline of OpenCV.
		13th	Numerical Method	OpenCV foundation (image processing) OpenCV can be installed and basic image processing can be performed.
		14th	Numerical Method	OpenCV application (pattern recognition) It is possible to explain image analysis / pattern recognition by OpenCV.
		15th		
		16th		

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	100	0	0	0	0	100
Basic Ability	0	20	0	0	0	0	20
Technical Ability	0	80	0	0	0	0	80
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Advanced Seminars and Exercises

Course Information

Course Code	0024	Course Category	Specialized / Compulsory
Class Format	Seminar	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi		

Course Objectives

Through challenges, it is possible to understand technical expertise and evaluation methods for the development of systems. And, it is possible to summarize and publish the acquired technical knowledge.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Have a design capability to solve the problem.	Utilizing science and technology and information, it is possible to respond to the demands of society with a wide perspective and advanced expertise.	Have specialized technologies that can meet the demands of society.	Do not have technology that meets the demands of society.
Have the ability to perform the PJ.	The team or the person can systematically advance the PJ in the constraint and express the creative system and express it.	The team or the person can proceed with PJ systematically within the limits.	The team or the person cannot proceed systematically with PJ within the limits.
The ability to resolve issues and publish the results of the efforts.	The background and purpose of the problem, including the trends in the relevant areas, can be understood and easily explained to others.	The background and purpose of the problem are almost understood, and it can be explained easily to the others.	Cannot understand the background or purpose of the problem, and cannot explain it easily to others.

Assigned Department Objectives

Teaching Method

Outline	Through the experiments, the expertise of electronics and information technology will be enhanced. We will also enhance our ability to build systems through our tasks.
Style	Experiments are conducted on 5 themes.
Notice	The credit approval requires more than 60 points.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Instrumentation amplifier training	The instrumentation amplifier can be described and a specific circuit can be assembled.
		2nd	Analog filter (lowpass high pass) exercise	The low-pass (high-pass) filter can be described, and a specific circuit can be assembled.
		3rd	Analog filter (notch) training	The notch filter can be described, and a specific circuit can be assembled.
		4th	Analysis of data analysis using statistical analysis method 1	The statistical analysis method can be explained.
		5th	Analysis of data analysis using statistical analysis method 2	A statistical analysis method can be used to perform basic data analysis.
		6th	Analysis of data analysis using statistical analysis method 3	The statistical analysis method can be used to analyze the application data.
		7th	Hands-On Experience with IoT Devices 1	An IoT device can be explained.
		8th	Hands-On Experience with IoT Devices 2	You can experiment with the basic features of an IoT device.
	4th Quarter	9th	Hands-On Experience with IoT Devices 3	You can experiment with the application functionality of an IoT device.
		10th	Phase sensitive amplifier training	The phase sensitive amplifier can be explained.
		11th	Simulation of the simulation of signals buried in the noise	Signal detection in the noise is possible.
		12th	Training of weak signal detection systems	Detection of a weak signal is possible.
		13th	Data collection and analysis exercise of sensing device 1	The sensing device and the data collection can be explained.
		14th	Data collection and analysis exercise of sensing device 2	The experiment of element technology concerning sensing devices and data collection can be carried out.
		15th	Data collection and analysis exercise of sensing device 3	The sensing device and the data collection system can be constructed.
		16th	Occasional date	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total

Subtotal	0	100	0	0	0	0	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	0	100	0	0	0	0	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Internship B

Course Information

Course Code	0025	Course Category	Specialized / Elective
Class Format	Experiment / Practical training	Credits	Academic Credit: 3
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	3
Textbook and/or Teaching Materials			
Instructor	Furuyama Shoichi,Hsegawa Hiroshi,Kyoden Tomoaki		

Course Objectives

(Learning education goal) A1, A2, D1, E2 (Evaluation criteria) a, b, f, g As an engineer in control engineering and information engineering, acquire the ability to keep capturing phenomena from an international perspective (a, g), A goal is to judge not only from the home country but from the viewpoint friendly to the earth (b), (f) to cultivate the ability to explain. For that purpose, we will conduct overseas language training / visit related companies for about a month.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
Understanding International Cultures	Enough understandings with communication at foreign countries.	Understandings to international culture.	Not understandings to international culture.
Evaluation 2			
Evaluation 3			

Assigned Department Objectives

Teaching Method

Outline	· Explain solutions to specific international issues including control engineering and information engineering. (a, g) · Explain specific international issues including control engineering and information engineering from an ethical point of view. (b, f)
Style	How to proceed and contents of lessons · Method: Comprehensively based on the presentation (about 70%) and the report (about 30%).
Notice	important point: We observe the regulations of the institution of training and pay attention to incidents and accidents during training

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Briefing session	In addition to explaining the purpose and significance of overseas internships, we will inform about the status of implementation in the previous fiscal year, attention points for participation, etc.
		2nd	Preparing session	We prepare an application form, a pledge form etc according to the preparation form two weeks and let me submit it by the deadline.
		3rd	Traveling	When traveling overseas for 3 weeks, experience the procedure and connection at the direction of the outgoing school teacher in traveling abroad.
		4th	internship	Participate in internships at universities and their affiliated companies. Understand different cultures based on experience through staying locally and living during the period.
		5th	Reporting	After the report of 5 weeks, prepare a report and submit it. Present at the internship meeting.
		6th		
		7th		
		8th		
	2nd Quarter	9th		
		10th		
		11th		
		12th		
		13th		
		14th		
		15th		
		16th		

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	100	0	0	0	0	100
Basic Ability	0	40	0	0	0	0	40

Technical Ability	0	40	0	0	0	0	40
Interdisciplinary Ability	0	20	0	0	0	0	20

Toyama College	Year	2020	Course Title	Internship A

Course Information

Course Code	0026	Course Category	Specialized / Elective
Class Format	Experiment / Practical training	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	internship implementation requirements		
Instructor	Yoshii Yotsumi,Hsegawa Hiroshi		

Course Objectives

As an engineer, we aim to acquire the ability to continuously capture events from an international perspective, to cultivate the ability to judge and explain not only from home country but also from earthly friendly perspective. For that purpose, we conduct Japanese company training for more than two weeks.

Rubric

	理想的な到達レベルの目安	標準的な到達レベルの目安	未到達レベルの目安
評価項目1	Through participation in practical training at the training company, it was enough to grasp, judge and explain the events from an international perspective.	Through participation in practical training at the company to be trained, we were able to grasp, judge and explain the events from an international perspective.	I could not grasp, judge and explain the events from an international perspective.

Assigned Department Objectives

Teaching Method

Outline	· Explain the solution to specific international issues including control engineering and information engineering relations (a, g)_x000D_ · Explain specific international issues including control engineering and information engineering from an ethical point of view. (b, f)
Style	Evaluate by presentation and report.
Notice	

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Determining the Internship Destination	Students who wish to take a class are consulted with their host institution, approved by the homeroom teacher, applied for in the application form, and obtained permission.
		2nd	Preparation	Be sure to join student educational research disaster insurance (internship course).
		3rd	Preparation	Submit an internship application form and designated pledge to the homeroom teacher.
		4th	During the internship period	Students engage in internship work and prepare daily business records in a predetermined format. Also, obtain findings from the work instruction supervisor.
		5th	After the internship is over	At the end of the internship work, prepare a report. And submit it to your teacher.
		6th		
		7th		
		8th		
	2nd Quarter	9th		
		10th		
		11th		
		12th		
		13th		
		14th		
		15th		
		16th		

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	0	50	0	0	50	0	100
基礎的能力	0	50	0	0	50	0	100
専門的能力	0	0	0	0	0	0	0
分野横断的能力	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Japanese Language and Literature

Course Information

Course Code	0036	Course Category	General / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	handout		
Instructor	Kondo Shugo		

Course Objectives

D1JABEE1(1)d,e,f What's the original? What's the difference between the original and the copy? This course is intended to understand Japanese modern literature and Japanese culture.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
Evaluation 1	You gain the techniques of processing and making something	You aware the techniques of processing and making something	You don't aware the techniques of processing and making something
Evaluation 2	You can announce something very well	You can announce something well	You can't announce
Evaluation 3	You gain a deeper understanding of Japanese literature and culture	You gain a understanding of Japanese literature and culture	You don't gain any understanding of Japanese literature and culture

Assigned Department Objectives

Teaching Method

Outline	What's the original? What's the difference between the original and the copy? This course is intended to understand Japanese modern literature and Japanese culture.
Style	Lecture
Notice	The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Orientation	Orientation
		2nd	Cultural Theory	Introduction to Intertextuality in literature
		3rd	Cultural Theory	Introduction to intertextuality in literature
		4th	Cultural Theory	Introduction to intertextuality in literature
		5th	Modern Japanese literature Studies	Generating process on "Run,Möros,run" by Osamu Dazai
		6th	Modern Japanese literature Studies	Generating process on "Run,Möros,run" by Osamu Dazai
		7th	Modern Japanese literature Studies	Generating process on "Run,Möros,run" by Osamu Dazai
		8th	Presentation Practice	Presentation Practice
	4th Quarter	9th	Presentation Practice	Presentation Practice
		10th	Presentation Practice	Presentation Practice
		11th	Contemporary Japanese literature Studies	Pygmalion Theme of Manipulation in Japanese literature
		12th	Contemporary Japanese literature Studies	Pygmalion Theme of Manipulation in Japanese literature
		13th	Contemporary Japanese literature Studies	Pygmalion Theme of Manipulation in Japanese literature
		14th	Report Writing	Report Writing
		15th	Report Writing	Report Writing
		16th	Term examination	Term examination

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	75	25	0	0	0	0	100
Basic Ability	25	25	0	0	0	0	50
Technical Ability	25	0	0	0	0	0	25
Interdisciplinary Ability	25	0	0	0	0	0	25

Toyama College	Year	2020	Course Title	Regional Studies

Course Information

Course Code	0038	Course Category	General / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	使用しない		
Instructor	Yokota Kazuhiro		

Course Objectives

産業論の基礎を学ぶとともに，北陸地域の実状を把握することに努める。特産物や地場産業や特色ある観光資源など，地域的特性を事実として，みずからの目や耳を通して，客観的に把握することをめざしていく。

Rubric

	理想的な到達レベルの目安	標準的な到達レベルの目安	未到達レベルの目安
評価項目1	現代の産業に関する基礎知識を習得した上で、今後の日本経済の展望を自分なりに描くことができる。	現代の産業に関する基礎知識を習得している。	現代の産業に関する基礎知識を習得することができない。
評価項目2	富山県や北陸地域の地域事情を把握した上で、今後の展望を自分なりに描くことができる。	富山県や北陸地域の地域事情を把握している。	富山県や北陸地域の地域事情を把握することができない。
評価項目3			

Assigned Department Objectives

Teaching Method

Outline	（学習教育目標）A1 （評価基準）a 産業論の基礎・基本を学ぶことと，近現代以降の北陸地域の態様変化を追究することをねらいとした科目である。 経済活動は，まさにグローバル化してきている。その大きな動きのなかで，地域社会は如何に変化してきたのか，また，今後どのように変化していくのかを理論的・歴史的に検討してみたい。（a）
Style	教員単独で実施による講義形式を中心とするが、演習や地域巡検も実施する。授業時間中に学生発表も行う。地域巡検については、授業時間外に別途実施する予定である（半日）。また、地元紙（北日本・富山・北陸中日）、地元経済誌（北陸経済研究・北國TODAY）、全国週刊経済誌なども学生に分担してレビューしてもらう。授業の詳細（内容・計画）は受講生と相談の上、最終的に決定する（シラバスの変更も行う）。
Notice	［授業改善策］ ①みずからの五感で具体的事実を把握・理解できるよう、授業時に配慮したい。実地調査（巡検）を授業時及び授業外（休日に設定する）に行い、座学で得た知識を「応用」したいと考えている。 ②「近未来の職業選択」に役立つよう、授業時に配慮するつもりである。近在の大学などでの文献調査だけでなく，地元企業や特定地域を対象とするフィールドワーク（実地調査）を実施するのはそのためである。こういった「頭と身体を同時に動かす」作業を通して，地域社会の姿を浮き彫りにしていきたい。

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	はじめに	・ガイダンス ・地域を産業の視点で学んでいく意義 ・地域を客観的・相対的に把握することの意味
		2nd	●実地調査（１）	射水市海老江地区・堀岡地区・下村地区の巡検
		3rd	産業論の基礎（１）	①産業構造・産業構成の基本理論 ②第１次産業（農林水産業）
		4th	産業論の基礎（２）	③第２次産業（加工業） ④第３次産業（サービス業）
		5th	●実地調査（２）	射水市新湊中心市街地の巡検
		6th	北陸の地域特性（１）	・北陸地域を地理的歴史的に概観（自然地理的特性・人文的特徴） ・視点としての環日本海
		7th	北陸の地域特性（２）	・地域間交流と北前船 ・能登地域との比較
		8th	●実地調査（３）	南砺地域市街地（福光・城端・福野・井波など）の巡検
	2nd Quarter	9th	地域産業論（１）	富山県地域における産業の特色（歴史的把握） ・売薬と産業の系譜 ・「創業」の伝統（日本資本主義の発展に寄与した富山県人）
		10th	地域産業論（２）	特産物
		11th	●実地調査（４）	港湾地区（伏木富山港岩瀬地区など）の巡検
		12th	地域産業論（３）	地場産業
		13th	地域産業論（４）	観光資源
		14th	●実地調査（５）	新川地域の巡検(新幹線建設・観光地など)
		15th	期末試験	実施しない
		16th	おわりに	・受講生による発表（地元地域の企業研究など） ・成績評価・確認

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	0	30	0	30	40	0	100

基礎的能力	0	10	0	10	20	0	40
専門的能力	0	10	0	10	10	0	30
分野横断的能力	0	10	0	10	10	0	30

Toyama College	Year	2020	Course Title	Health Science

Course Information

Course Code	0039	Course Category	General / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Ohashi Chisato		

Course Objectives

(1)Deepen understanding of exercise phisiology
(2)Subjective recognition of health promotion utilizing own deta, amount of daily physical activity
(3)Bring up qualification for creation and action a scientific exercise program fitting own lifestyles

Rubric

	理想的な到達レベルの目安(優)	標準的な到達レベルの目安(良)	未到達レベルの目安(不可)
評価項目1	現代の社会的背景から、日本国民が抱える健康問題について深く理解することができ、その解決策を検討することができる。	現代の社会的背景から、日本国民が抱える健康問題について理解することができる。	現代の社会的背景から、日本国民が抱える健康問題についての理解が十分ではない。
評価項目2	自らの健康度と身体活動量のデータから、生涯にわたる健康づくりについて主体的に捉えることができる。	自らの健康度と身体活動量のデータから、生涯にわたる健康づくりの必要性を理解している。	自らの健康度と身体活動量のデータから、生涯にわたる健康づくりの必要性を十分に理解していない。
評価項目3	ライフスタイルに合った運動プログラムを身体活動ガイドラインに沿って作成し、実践するための態度が身についている。	ライフスタイルに合った運動プログラムを身体活動ガイドラインに沿って作成することができる。	ライフスタイルに合った運動プログラムを身体活動ガイドラインに沿って作成することができない。

Assigned Department Objectives

Teaching Method

Outline	(1)Objective Students understand physiological effects that exercises are influential in health promotion and fitness levels. Furthermore Students acquire the ability to make exercise program fitting own lifestyle and act the program. Through the actions, students are expected to be engineers who lead a healthy life in the future. (2)Summary 現代の病気の主役となっている生活習慣病は、運動・栄養・休養・ストレス等、日常生活の送り方が大きく影響している。運動は、体力を向上し、健康を増進させることから、運動・健康に関する知識を教養として学習する。 Lifestyle [
Style	
Notice	実験や測定を実施する場合は、運動ができる服装で授業に参加すること。

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Orientation	We take an explanation of the syllabuse.
		2nd	Execution and Estimation of Simple Fitness Test	We take a simple stamina test and estimate own fitness level.
		3rd	Concept about Health(1)	We study a basic health concept.
		4th	Concept about Health(2)	We study a practical health concept.
		5th	Exercise and Fitness	We study exercise effects which influence fitness and methods of practical training.
		6th	Exercise and Lifestyle Disease	We understand the relevance between lack of exercise and lifestyle desease.
		7th	Exercise Therapy Effect	We study exercise therapy methods for improvement lifestyle desease and these effects.
		8th	Daily Amount of Physical Activity.	We measure the amount of physical activity using pedometers for 2 weeks.
	4th Quarter	9th	Healthy Exercise Practice(1)	We set exercise event, the target of intensity and time to make exercise programs fitting our lifestyles.
		10th	Estimation of Daily Amount of Physical Activity	We estimate our physical activity on our lifes from own data of the amount of physical activity collected by pedometers.
		11th	Physical Activity and Health	We understand the guileline "Physical activity reference for health promotion 2013" , and restart to measure the amount of physical activity.
		12th	Healthy Exercise Practice(2)	We reset the exercise event, the target of intensity and time, and practice exercise plans which we set ourselves.
		13th	Re-stimation of Daily Amount of Physical Activity	We make a comparision between the first physical activity data and the second.
		14th	Preparation for Presentation about Exercise Program	We make our exercise programs fitting own lifestyles and prepara presentations about these.
		15th	Presentation	We have presentations. Presentation is for 10 minutes a parson.

		16th	Presentation Class Evaluation Quastionnaire	We have presentations. Finally we answer class eveluation quastionnaires.

Evaluation Method and Weight (%)

	試験	発表	相互評価	態度	ポートフォリオ	その他	Total
Subtotal	0	75	0	0	0	25	100
基礎的能力	0	0	0	0	0	0	0
専門的能力	0	75	0	0	0	25	100
分野横断的能力	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Industrial Society

Course Information

Course Code	0040	Course Category	General / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Hsegawa Hiroshi		

Course Objectives

"1.Students can understand the background of contemporary Japanese industry.
2.Students can understand the society and environment surrounding themselves for their own business.
3.Students can understand the innovation and problem solving."

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
Evaluation 1	Students can understand the background of contemporary Japanese industry.	Students can almost understand the background of contemporary Japanese industry.	Students cannot understand the background of contemporary Japanese industry.
Evaluation 2	Students can understand the society and environment surrounding themselves for their own business.	Students can almost understand the society and environment surrounding themselves for their own business.	Students cannot understand the society and environment surrounding themselves for their own business.
Evaluation 3	Students can understand the society and environment surrounding themselves for their own business.	Students can almost understand the society and environment surrounding themselves for their own business.	Students cannot understand the society and environment surrounding themselves for their own business.

Assigned Department Objectives

Teaching Method

Outline	"The purpose of this class is to understand the background of contemporary Japanese industry. Students also can understand the society and environment surrounding themselves for their own business. And students can understand the innovation and problem solving."
Style	Lecture and presentation
Notice	More than 60 points are necessary to satisfy the evaluation criteria of JABEE.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Course Orientation College Liberal Arts	
		2nd	Approach to social science	
		3rd	Background of modern Japanese industry (1)	
		4th	Background of modern Japanese industry (2)	
		5th	Background of modern Japanese industry (3)	
		6th	Background of modern Japanese industry (4)	
		7th	Background of modern Japanese industry (5)	
		8th	Background of modern Japanese industry (6)	
	2nd Quarter	9th	Background of modern Japanese industry (7)	
		10th	Understanding the environment surrounding the industry (1)	
		11th	Understanding the environment surrounding the industry (2)	
		12th	Viewpoint involved in industry (1)	
		13th	Viewpoint involved in industry (2)	
		14th	Viewpoint involved in industry (3)	
		15th	Final presentation of final paper	
		16th		

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	50	0	0	0	50	100
Basic Ability	0	20	0	0	0	20	40
Technical Ability	0	10	0	0	0	10	20
Interdisciplinary Ability	0	20	0	0	0	20	40

Toyama College	Year	2020	Course Title	Culture Studies of Japan Sea Rim Countries

Course Information

Course Code	0041	Course Category	General / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	高階秀爾『西洋美術史』、中澤敦夫・宮崎衣澄『暮らしの中のロシア・イコン』		
Instructor	Miyazaki Izumi		

Course Objectives

1. Students can understand the culture and the religion in Russia by the analysis of Icon paintings.
2. Students can understand the history of relations between Japan and Russia on the basis of the Japan Orthdox church.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Students can understand the history of art and russian icon paintings.	Students can almost understand the history of art and russian icon paintings.	Students cannot almost understand the history of art and russian icon paintings.
Evaluation 2	Students can understand the russian icon paintings on the base of the russian culture.	Students can almost understand the russian icon paintings on the base of the russian culture.	Students cannot understand the russian icon paintings on the base of the russian culture.
Evaluation 3	Students can understand the history of relations between Japan and Russia.	Students can almost understand the history of relations between Japan and Russia.	Students cannot understand the history of relations between Japan and Russia.

Assigned Department Objectives

Teaching Method

Outline	The purpose of this class is to understand the culture and the religion in Russia by the analysis of Icon paintings. Students also understand the history of relations between Japan and Russia on the basis of the Japan Orthdox church.
Style	Lecture and presentation
Notice	More than 60 points are necessary to satisfy the evaluation criteria of JABEE.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	introduction	Students can understand the course contents and goal.
		2nd	Art history1	Students can understand general art history
		3rd	Art history2	Students can understand general art history
		4th	Art history3	Students can understand general art history
		5th	Art history4	Students can understand general art history
		6th	Art history5	Students can understand general art history
		7th	Preparation for research at Museum	Students can understand the collection of Toyama museum
		8th	Research at Toyama Museum	Students can understand the history and the collection of Toyama museum
	4th Quarter	9th	Presentation	Students can make effective presentations.
		10th	Russia and Icon paninings1	Students can understand the history of religion and art in Russia.
		11th	Russia and Icon paninings2	Students can understand the history of religion and art in Russia.
		12th	Janan Orthdox church and Russia	Students can understand the history of Japan Orthdox chuch and Russia.
		13th	Preparation for research at Museum	Students can understand the collection of Nishida museum
		14th	Research at Nishida Museum	Students can understand the history and the collection of Toyama museum
		15th	Final presentation of final paper	Students can make effective presentations.
		16th	Conclusion and evaluation	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Paper	Total
Subtotal	0	40	0	0	0	60	100
Basic Ability	0	20	0	0	0	30	50
Technical Ability	0	10	0	0	0	20	30
Interdisciplinary Ability	0	10	0	0	0	10	20

Toyama College	Year	2020	Course Title	Engineering Ethics/Business Ethics

Course Information

Course Code	0028	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	『技術者の倫理入門　第五版』　杉本泰治・高橋重厚著　丸善(20１６年)		
Instructor	Yokota Kazuhiro,Tsukada Akira,Matsubara Yoshihiro		

Course Objectives

Through this course, understanding of the following will be facilitated.
(1) Basic knowledge concerning the code of conducton on engineering ethics / business ethics.
(2) Explain the philosophy and background of engineering ethics / business ethics.
(3) Understand cases related to science, technology and present multiple solutions as professional engineers or business persons.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly explain the basic knowledge concerning the code of conduct on engineering ethics / business ethics.	Ability to explain the basic knowledge concerning the code of conduct on engineering ethics / business ethics.	Unable to explain the basic knowledge concerning the code of conduct on engineering ethics / business ethics.
Evaluation 2	Clearly explain the philosophy and background of engineering ethics / business ethics.	Ability to explain the philosophy and background of engineering ethics / business ethics.	Unable to explain the philosophy and background of engineering ethics / business ethics
Evaluation 3	Clearly understands cases related to science, technology and present multiple solutions as professional engineers or business persons.	Ability to explain cases related to science, technology and present multiple solutions as professional engineers or business persons.	Unable to explain cases related to science, technology and present multiple solutions as professional engineers or business persons.

Assigned Department Objectives

Teaching Method

Outline	In this course, You discuss the reasons why engineers and business persons need ethics through specific cases. And you practice ethical behavior and master basic knowledge to contribute to the development of science and technology that people and nature can coexist. In addition, you learn about intellectual property rights.
Style	It is necessary to think from an ethical viewpoint and to express your opinion.
Notice	・Discussion and Report: 60% ・Presentation of case studies: 40% The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance	Discuss the goals and structure of this course.
		2nd	Introduction to morals Engineers, business persons and ethics	Learn morals and ethics of engineers, business persons.
		3rd	Organization, relationships and morals	Discuss organization, relationships and morals.
		4th	Engineers, business persons and ethics Engineer qualification	Discuss engineers, business persons and ethics.
		5th	Method of ethics implementation Duty of care	Discuss method of ethics implementation.
		6th	Legal liability and moral liability Honesty, Truth, Reliability	Discuss legal liability and moral liability.
		7th	Accountability Whistle blower	Discuss accountability and Whistle blower.
		8th	Environment and Ethics Intellectual property	Discuss environment and ethics. Learn intellectual property.
	4th Quarter	9th	Special lecture on intellectual property	Learn intellectual property from patent attorneys.
		10th	Case study 1	Case study and Discussion.
		11th	Case study 2	Case study and Discussion.
		12th	Case study 3	Case study and Discussion.
		13th	Case study 4	Case study and Discussion.
		14th	Case study 5	Case study and Discussion.
		15th	Case study 6	Case study and Discussion.
		16th	Summary	Summarize the study content.

Evaluation Method and Weight (%)

	Discussion	Presentation and Report	Total
Subtotal	60	40	100
Basic Ability	20	0	20
Technical Ability	20	20	40
Interdisciplinary Ability	20	20	40

Toyama College	Year	2020	Course Title	Parameter Design

Course Information

Course Code	0029	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	Quality Engineering for Beginners -For Understanding the Technology- ©Koya Yano 2013 CORONA PUBLISHING CO.,LTD. ISBN978-4-339-02475-3		
Instructor	Mizutani Junnosuke		

Course Objectives

Student understands the significance and basic function of Two-step optimization.
Student be able to access a system based on the concept of Quality Engineering.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Student be able to propose an experiment of Assessment of Functionality perfomability.	Student understands the meaning of Two-step optimization.	Student not understands the meaning of Noise factor.
Evaluation 2	Student be able to devise a basic function.	Student be able to calculate the S/N ratio of Dynamic characteristics.	Student not be able to calculate the S/N ratio of Static characteristics.
Evaluation 3	Student be able to estimate the gain of S/N ratio under Optimum condition and normal condition.	Student be able to prepare a Graph of factorial effects.	Student not be able to plan an experiment from the level allocated on an Orthogonal array.

Assigned Department Objectives

Teaching Method

Outline	1. This course explores the outline of Parameter design as one of the main methods in the realm of off-line Quality Engineering. 2. This course aims to provide the students with sufficient knowledge of Two-step optimization that characterizes Parameter designs through practical exercises. 3. Students are expected to become engineers capable of analyzing and evaluating the basic function of systems by acquiring the concept of Parameter design.
Style	Lecture and exercise by an instructor.
Notice	Lecture and exercise by lecturer Study based on example questions on text book and through exercise. The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Explanation of Syllabus Background of Quality Engineering	Explanation of Syllabus Approach to Quality Engineering Robust parameter design (RPD) Two-step optimization
		2nd	Approach to Parameter Design	S/N ratio: Meaning and calculation
		3rd	Approach to Parameter Design	S/N ratio and Sensitivity: Meaning and calculation
		4th	Knowledge required for Parameter Design	Control factor and Orthogonal array
		5th	Knowledge required for Parameter Design	Noise factors and Compounded noise factors
		6th	Exercise 1	Product development by Nominal-is-best response
		7th	Knowledge required for Parameter Design	Approach to Dynamic characteristics and calculation of S/N ratio
		8th	Knowledge required for Parameter Design	Product development by Dynamic characteristics
	2nd Quarter	9th	Exercise 2	Product development by Dynamic characteristics
		10th	Procedure for Parameter Design of Dynamic characteristics	Preparation of auxiliary table and response graph
		11th	Procedure for Parameter Design of Dynamic characteristics	Estimation of gain and confirmation run
		12th	Exercise 3	Parameter design of Dynamic characteristic
		13th	Exercise 4	Parameter design of Dynamic characteristics
		14th	Assessment of Functionality perfomability	Definition of Functionality perfomability Assessment procedure fo Functionality perfomability
		15th	Term-end Examination	Approach to Parameter design Calculation exercise
		16th	Review	Answers of examination Review of achievement Questionnaire on course

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	50	0	0	0	0	50	100

Basic Ability	0	0	0	0	0	0	0
Technical Ability	50	0	0	0	0	50	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Manufacturing System

Course Information

Course Code	0030	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	KISOSEISANKAKOUGAKU(Asakura Shoten)		
Instructor	Yamamoto Keiichiro		

Course Objectives

Students will understand the manufacturing system and can answer practice questions.
Students will understand the manufacturing system and can do presentation what kind of product about the manufacturing system is applied to.
To reach the evaluation standard of JABEE: 60 points or more are necessary on final examination.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Understand the manufacturing system and can answer practice questions	Understand the manufacturing system and can answer practice questions.	Understand the manufacturing system.	Not understand the manufacturing system and can not answer practice questions.
Not understand the manufacturing system and can not presentation what kind of product about manufacturing system is applied to.	Understand the manufacturing system and can logically presentation what kind of product about manufacturing system is applied to.	Understand the manufacturing system and can do presentation what kind of product about manufacturing system is applied to.	Not understand the manufacturing system and can not presentation what kind of product about manufacturing system is applied to.

Assigned Department Objectives

Teaching Method

Outline	Describe the basic of the manufacturing system required as an engineer. At First, explain about outline the history of material processing technology, the production form after the industrial revolution, processing efficiency / process control. In order to teach production in general at this lecture, there is not enough time in one-sided lecture, so that students need work actively. So each students one should summarize the manufacturing system of different thems and presentation. They will take the approach shared by all the students.
Style	Lecture Exercise
Notice	The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Reason why to learn the manufacturing system	Explanation of class objective by syllabus What are high quality products, about its technology and equipment
		2nd	Outline of production processing	Choose of how to make some products and production method
		3rd	Outline of representative production system	Explain about representative production system
		4th	Thinking method necessary for manufacturing (development, design, production)	Explain about the manufacturing flow from development to shipment
		5th	Cost and Quality	Explain about the concept of cost and quality of manufacturing
		6th	Each theme settings and survey, 5 minutes speech	Set different themes individually Speech 5 min.
		7th	Each theme settings and survey, 5 minutes speech	Individual theme analysis Speech 5 min.
		8th	Each theme settings and survey, 5 minutes speech	Individual theme analysis Speech 5 min.
	4th Quarter	9th	Group work, Opinion exchange	Discussion on group
		10th	Group work, Opinion exchange	Discussion on group
		11th	Brush up each theme	Individual theme analysis
		12th	Brush up each theme	Individual theme analysis
		13th	Brush up each theme	Individual theme analysis
		14th	Sharing knowledge by each presentation	Share within class each presentation
		15th	Final examination	Comprehensive question through lecture
		16th	Sharing knowledge by each presentation	Share within class each presentation

Evaluation Method and Weight (%)

	Examination	Presentation	Report	Total
Subtotal	60	20	20	100
Basic Ability	10	0	0	10
Technical Ability	30	10	10	50
Interdisciplinary Ability	20	10	10	40

Toyama College	Year	2020	Course Title	Introduction to Geoscience

Course Information

Course Code	0031	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	Teacher distribution documents		
Instructor	Fukudome Kenichi		

Course Objectives

Through this course, understanding of the following will be facilitated.
(1) What does the the geophysical fluid dynamics
(2) The governing equations of geophisycal fluid dynamics
(3) The characteristics of the geophysical fluid dynamics

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly understands the general idea of the geophysical fluid dynamics and displays the ability to explain it	Ability to understand the general idea of the geophysical fluid dynamics	Unable to understand the general idea of the geophysical fluid dynamics
Evaluation 2	A thorough understanding of the fundamental processes governing oceanic and atmospheric motions	Basic understanding of the fundamental processes governing oceanic and atmospheric motions	Unable to understand the fundamental processes governing oceanic and atmospheric motions

Assigned Department Objectives

Teaching Method

Outline	This class is designed to introduce students to the physics that govern the phenomena in the ocean and atmosphere.
Style	Students are expected to attend all classes on time. Your grade will be based participation (attendance and homework : 40%) and on a final presentation (60%).
Notice	Basic fluid mechanics and physics knowledge, vector calculus, partial differential equations.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Introduction to the geophysical fluid dynamics	Characteristics of the ocean and the atmosphere, general idea of the geophysical fluid dynamics
		2nd	The governing equations (1)	Continuity of mass, Equation of Motion, Lagrangian and Eulerian Approaches
		3rd	The governing equations (2)	Physical characteristics of the ocean, Equation of state, Thermodynamic Equations
		4th	The governing equations (3)	Boussinesq approximation, Rossby number
		5th	Boundary conditions between atmosphere and ocean	The Earth's heat budget, Heat, Water, and Salt Balance
		6th	Geostrophic Flow (1)	Geostrophic Adjustment and Balance, Sverdrup balance
		7th	Geostrophic Flow (2)	Barotropic and baroclinic flow
		8th	midterm exam	midterm exam
	4th Quarter	9th	Boundary layers (1)	Boundary layers in atmosphere and ocean
		10th	Boundary layers (2)	Bottom boundary layer, Ekman transport
		11th	Barotropic ocean circulation (1)	Ekman pumping
		12th	Barotropic ocean circulation (2)	Western boundary currents
		13th	Barocrinic ocean circulation (1)	physical properties of sea water, global distribution of temperature and salinity
		14th	Barocrinic ocean circulation (2)	Quasigeostrophic theory, eddies, rossby waves
		15th	Final presentation	Final presentation
		16th	Review session	Review session

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	0	30	30	0	0	40	100
Basic Ability	0	10	10	0	0	20	40
Technical Ability	0	20	10	0	0	20	50
Interdisciplinary Ability	0	0	10	0	0	0	10

Toyama College	Year	2020	Course Title	Thesis Research I

Course Information

Course Code	0032	Course Category	Specialized / Compulsory
Class Format	Experiment / Practical training	Credits	Academic Credit: 5
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	5
Textbook and/or Teaching Materials			
Instructor	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi		

Course Objectives

Following three elements are educated as encouraging abilities of a research and development.
1. Students can suggest, design and construct related systems such as software, hardware and network with considering a social background.
2. Students can solve problems by their fundamental and specific knowledge.
3. Students can present and discuss their research theme.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
(Research work 1) Backgrounds, purposes, methods, contents, results, discussion and future tasks are included.	All elements are included.	Acceptable contents.	Lacks of contents.
(Research work 2) Expression of statement, figures and tabular.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 3) The expression of backgrounds and purposes.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 4) Methodology	Acceptable methodologies.	Almost acceptable methodologies.	Unacceptable methodologies.
(Research work 5) Logical Structure	Reasonable logical structure.	Almost reasonable structure.	Not reasonable logical structure.
(Research work 6) Critical Thinking	Reasonable discussion.	Almost reasonable discussion.	Unacceptable discussion.
(Research work 7) Validity of results	Cleared and valid results are expressed.	Almost valid results are expressed.	Unacceptable results.
(Research work 8) Future works	Valid future plan and schedule. Clear solutions are provided.	Acceptable plan and schedule.	Unacceptable plan.
(Presentation 1) (1)Background	Reasonable structure.	Acceptable structure	Unacceptable structure
(Presentation 2) Suitable expression of sentences and figures.	Reasonable sentences and figures.	Acceptable sentences and figures	Unacceptable sentences and figures
(Presentation 3) Logical structure	Reasonable logical structure	Almost reasonable structure	Not reasonable logical structure

Assigned Department Objectives

Teaching Method

Outline	For special research topics related to the same control information system through major departments 1 and 2 years, under the supervisor, acquire the method of literature survey, experimental / theoretical analysis method, evaluation method, and nurture research promotion ability. In line with each concrete theme, increase the comprehensive research capability through investigation and education of required knowledge necessary for application, application to problem solving, analysis and evaluation of the results obtained. We will summarize and present the research results we have worked on in Special Study I. [Control] C3 [JABEE Standard 1 (2)] (f) (g)
Style	In each laboratory, conduct research under the guidance of the main deputy supervisor advisor. Classification method, multiple faculty charge method
Notice	To undertake subjectively and systematically on issues under the supervisor. One chief examiner and two sub-investigators comprehensively evaluated the content of the thesis, the contents of the presentation and the status of activities based on the evaluation criteria table (total table instructions), with a paper evaluation of 50%, a presentation evaluation of 30%, an effort status of 20% , Pass score over 60 points.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		2nd	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)

		3rd	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		4th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		5th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		6th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		7th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		8th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
	2nd Quarter	9th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		10th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		11th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		12th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		13th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		14th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		15th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		16th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	100	0	0	0	0	0	100
Report	30	0	0	0	0	0	30
Presentation	50	0	0	0	0	0	50
Effort	20	0	0	0	0	0	20

Toyama College	Year	2020	Course Title	Thesis Research Ⅱ

Course Information

Course Code	0033	Course Category	Specialized / Compulsory
Class Format	Experiment / Practical training	Credits	Academic Credit: 5
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	5
Textbook and/or Teaching Materials			
Instructor	Shina Toru,Akiguchi Shunsuke,Matoba Ryuichi,Oguma Hiroshi,Tsukada Akira,Ito Nao,Mizumoto Iwao,Aso Tsukasa,Yoshii Yotsumi,Furuyama Shoichi		

Course Objectives

Following three elements are educated as encouraging abilities of a research and development.
1. Students can suggest, design and construct related systems such as software, hardware and network with considering a social background.
2. Students can solve problems by their fundamental and specific knowledge.
3. Students can present and discuss their research theme.

Rubric

	Ideal Level of Achievement	Standard Level of Achievement	Unacceptable Level of Achievement)
(Research work 1) Backgrounds, purposes, methods, contents, results, discussion and future tasks are included.	All elements are included.	Acceptable contents.	Lacks of contents.
(Research work 2) Expression of statement, figures and tabular.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 3) The expression of backgrounds and purposes.	Acceptable expression.	Almost acceptable expression.	Unacceptable and lack of expression.
(Research work 4) Methodology	Acceptable methodologies.	Almost acceptable methodologies.	Unacceptable methodologies.
(Research work 5) Logical Structure	Reasonable logical structure.	Almost reasonable structure.	Not reasonable logical structure.
(Research work 6) Critical Thinking	Reasonable discussion.	Almost reasonable discussion.	Unacceptable discussion.
(Research work 7) Validity of results	Cleared and valid results are expressed.	Almost valid results are expressed.	Unacceptable results.
(Research work 8) Future works	Valid future plan and schedule. Clear solutions are provided.	Acceptable plan and schedule.	Unacceptable plan.
(Presentation 1) (1)Background	Reasonable structure.	Acceptable structure	Unacceptable structure
(Presentation 2) Suitable expression of sentences and figures.	Reasonable sentences and figures.	Acceptable sentences and figures	Unacceptable sentences and figures
(Presentation 3) Logical structure	Reasonable logical structure	Almost reasonable structure	Not reasonable logical structure

Assigned Department Objectives

Teaching Method

Outline	For special research topics related to the same control information system through major departments 1 and 2 years, under the supervisor, acquire the method of literature survey, experimental / theoretical analysis method, evaluation method, and nurture research promotion ability. In line with each concrete theme, increase the comprehensive research capability through investigation and education of required knowledge necessary for application, application to problem solving, analysis and evaluation of the results obtained. We will summarize and present the research results we have worked on in Special Study I. [Control] C3 [JABEE Standard 1 (2)] (f) (g)
Style	In each laboratory, conduct research under the guidance of the main deputy supervisor advisor. Classification method, multiple faculty charge method
Notice	To undertake subjectively and systematically on issues under the supervisor. One chief examiner and two sub-investigators comprehensively evaluated the content of the thesis, the contents of the presentation and the status of activities based on the evaluation criteria table (total table instructions), with a paper evaluation of 50%, a presentation evaluation of 30%, an effort status of 20% , Pass score over 60 points.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		2nd	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)

		3rd	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		4th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		5th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		6th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		7th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		8th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
	4th Quarter	9th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		10th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		11th	Special Research	Study in the field of specialization necessary for research subject (Evaluation, Discussion, Re-Implementation, Improvement, Testing, Report)
		12th	Special Research	Writing research paper and preparing presentation slides for summarizing the research subjects.
		13th	Special Research	Writing research paper and preparing presentation slides for summarizing the research subjects.
		14th	Special Research	Writing research paper and preparing presentation slides for summarizing the research subjects.
		15th	Special Research(Paper presentation)	Report of the research subjects.
		16th	Special Research	Summarizing the research activity.

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	100	0	0	0	0	0	100
Report	30	0	0	0	0	0	30
Presentation	50	0	0	0	0	0	50
Effort	20	0	0	0	0	0	20

Toyama College	Year	2020	Course Title	Advanced Electromagnetic Waves

Course Information

Course Code	0034	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Shina Toru		

Course Objectives

Through this course, understanding of the following will be facilitated
(1) Maxwell's equations
(2) Uniform plane waves in free space and dielctrics
(3) Plane waves at boundaries and in dispersive media
(4) Standing waves and wave reflaction

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly understands and has the ability to explain the Maxwell's Equations and uniform plane waves.	Ability to understand and explain the Maxwell's Equations and uniform plane waves.	Unable to understand and explain the Maxwell's Equations and uniform plane waves.
Evaluation 2	Clearly understands the properties of plane waves and is able to explain them in detail. Has the ability to solve application problems.	Ability to explain the properties of plane waves and is able to explain them in detail. Has the ability to solve basic problems.	Unable to explain the properties of plane waves. Unable to solve basic problems.
Evaluation 3	Clearly understands the properties of reflection and standing waves and is able to explain them in detail. Has the ability to solve application problems.	Ability to explain the properties of reflection and standing waves and is able to explain them in detail. Has the ability to solve basic problems.	Unable to explain the properties of reflection and standing waves. Unable to solve basic problems.

Assigned Department Objectives

Teaching Method

Outline	In this course, you will learn about the principles, properties and fundamental physics of electromagnetic waves, specifically: optical fiber, waveguide and distributed circuit.
Style	For the purpose of understanding the Electromagnetic waves, lectures and exercises faciliate the learning of principles and examples.
Notice	The recognition of credit requires 60 points or more rating. Based on the knowledge of basic electromagnetics and wave.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Introduction of this class. Maxwell's Equations	To explain the Maxwell's Equations.
		2nd	Uniform Plane Waves. (1) Introduction	To explain uniform plane waves in free space.
		3rd	Uniform Plane Waves. (2) Phase Velocity, Group velocity	To explain the phase and group velocity in free space.
		4th	Uniform Plane Waves. (3) Waves Propagation in Free Space.	To explain the wave propagation in free space.
		5th	Loss Material	To explain plane waves in a loss material.
		6th	Evanescent Waves.	To explain evanescent waves.
		7th	Plane Waves at Boundaries. (1) Reflection at Normal Incidence. (a) Conductor	To explain the reflection of uniform plane waves at boundaries.
		8th	Plane Waves at Boundaries. (1) Reflection at Normal Incidence. (b) Dielectronic	To explain the reflection of uniform plane waves at boundaries.
	2nd Quarter	9th	Plane Waves at Boundaries. (2) Reflection at Oblique Incidence Angles. (a) Conductor	To explain the reflection of uniform plane waves at boundaries.
		10th	Plane Waves at Boundaries. (2) Reflection at Oblique Incidence Angles. (b) Dielectronic	To explain the reflection of uniform plane waves at boundaries.
		11th	To continue	To explain the reflection of uniform plane waves at boundaries.
		12th	Standing Waves. (1) Impedance and Distributed Circuit	To explain Standing Waves and distributed circuits.
		13th	Standing Waves. (2) Reflection	To explain the relationship between standing waves and reflection.
		14th	Standing Wave. (3) Reflection Coefficient	To explain reflection coefficient at standing waves.
		15th	Final examination	Final examination
		16th	Summary	Summarize the study content and confirm grades.

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	60	0	0	0	0	40	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	60	0	0	0	0	40	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Trade Procedure in Port

Course Information

Course Code	0035	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	ASAZUMA Yutaka, FUKUDA Tomoko, TOGAWA Kenichi, OKAMOTO Katsunori "Jidousya riyuusu to guroubaru shijyou-chyuukosya・chyuukobuhin no kokusai ryuutsuu-" Seizandou syoten, 2017.And we will distribute the handouts at times.		
Instructor	Okamoto Katsunori		

Course Objectives

①Students get basic knowledge about Incoterms and procedures of port transportation, customs clearance, and payment terms.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Students will be able to explain about technical terms of Incoterms and procedures of port transportation, customs clearance, and payment terms. As a result, they will be able to explain about those purposes, benefits, and faults with technical terms.	Students will be able to explain about technical terms of Incoterms and procedures of port transportation, customs clearance, and payment terms.	Students can't explain about technical terms of Incoterms and procedures of port transportation, customs clearance, and payment terms.

Assigned Department Objectives

Teaching Method

Outline	Students lean about procedures of port transportation, customs clearance, and payment terms with mutual relation in the case of used car export.
Style	Lecture by single teacher.
Notice	Students must read beforehand the designated part of required materials. Student's final grade will be decided based on the following: Term-end examination : 100% To pass, students must earn at least 60 points out of 100

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	The functions and economic roles of ports	Students will be able to understand the plan, goal, and way of assess about this subject.
		2nd	The functions and economic roles of ports	Students will be able to understand concepts of ports.
		3rd	Institutions of transportation for export –in the case of used car export-	Students will comprehend outline of transition about institutions of transportation for export. Then they will be able to understand the roles of "Export Trade Control Order" and "The Fundamental Directives of Customs Law". In addition, they will comprehend outline about logistics and modes of transportation.
		4th	Institutions of transportation for export –in the case of used car export-	Students will comprehend outline of transition about institutions of transportation for export. Then they will be able to understand the roles of "Export Trade Control Order" and "The Fundamental Directives of Customs Law". In addition, they will comprehend outline about logistics and modes of transportation.
		5th	Institutions of transportation for export with cargo flow –in the case of used car export-	Students will be able to understand major pre-defined commercial terms for trade in Incoterms.
		6th	Institutions of transportation for export with cargo flow –in the case of used car export-	Students will be able to understand major pre-defined commercial terms for trade in Incoterms.
		7th	Institutions of transportation for export with cargo flow –in the case of used car export-	Students will be able to understand major pre-defined commercial terms for trade in Incoterms.
		8th	Procedures of transportation for export with cargo flow (1) –in the case of used car export-	Students will comprehend procedures of port transportation until issuance of B/L. And they will be able to understand the roles of each document.
	2nd Quarter	9th	Procedures of transportation for export with cargo flow (2) –in the case of used car export-	Students will comprehend procedures of port transportation until issuance of B/L. And they will be able to understand the roles of each document.
		10th	Procedures of customs clearance for export with cargo flow (1) –in the case of used car export-	Students will comprehend procedures of customs clearance until issuance of E/P. And they will be able to understand the roles of each document. In addition, they will understand about details and roles of S/A.

		11th	Procedures of customs clearance for export with cargo flow (2) –in the case of used car export-	Students will comprehend procedures of customs clearance until issuance of E/P. And they will be able to understand the roles of each document. In addition, they will understand about details and roles of S/A.
		12th	Procedures of payment terms for export with cargo flow –in the case of used car export-	Students will comprehend procedures of payment terms. For example, management of documentary bill of exchange with L/C and management of T/T. And they will be able to comprehend about relationship between port transportation, customs clearance and payment terms in procedures. As a result, they will understand about benefits and faults of each payment terms.
		13th	Procedures of payment terms for export with cargo flow –in the case of used car export-	Students will comprehend procedures of payment terms. For example, management of documentary bill of exchange with L/C and management of T/T. And they will be able to comprehend about relationship between port transportation, customs clearance and payment terms in procedures. As a result, they will understand about benefits and faults of each payment terms.
		14th	Procedures of tax refound for exporters with cargo flow –in the case of used car export-	Students will comprehend procedures of tax refound for exporters.
		15th	A terminal examination	Teacher confirms achievement degree of each student for all lectures.
		16th	Return answer papers and explain about model answer	Students and teacher confirm score of examination and achievement of this subject.

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	100	0	0	0	0	0	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	100	0	0	0	0	0	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Port Logistics

Course Information

Course Code	0037	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	KOBAYASHI Teruo, SAWA Kishiro, KAGAWA Masatoshi, YOSHIOKA Hideki"Gendai nihon keizai to kouwan"Seizandou syoten, 2001.ASAZUMA Yutaka, FUKUDA Tomoko, TOGAWA Kenichi, OKAMOTO Katsunori "Jidousya riyuusu to guroubaru shijyou-chyuukosya・chyuukobuhin no kokusai ryuutsuu-" Seizandou syoten, 2017.And we will distribute the handouts at times.		
Instructor	Okamoto Katsunori		

Course Objectives

Students study port logistics. Students understand the economic functions of port facilities and the logistics of port logistics and understand the issues in port logistics.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Students will be able to explain about port logistics. Students will be able to explain the economic functions of port facilities and the logistics of port logistics using technical terms. In addition, students will be able to look at future issues in port logistics.	Students will be able to explain about port logistics. Students will be able to explain the economic functions of port facilities and the logistics of port logistics using technical terms.	Students can not explain port logistics using technical terms. Students can not explain the economic functions of port facilities and the logistics of port logistics using technical terms.

Assigned Department Objectives

Teaching Method

Outline	Students learn the role port logistics plays in society from the relationship between port logistics and the regional economy. In addition, students will learn the contents and transformation of logistics operations, especially in harbors.
Style	Lecture by single teachers.
Notice	Students must read beforehand the designated part of required materials. Student's final grade will be decided based on the following: Term-end examination : 100% To pass, students must earn at least 60 points out of 100.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	Students will be able to understand the plan, goal, and way of assess about this subject.
		2nd	Position of Japanese port in the world	Students understand the international competitiveness of Japanese ports.
		3rd	International specialization in industry	Students understand development of the horizontal international specialization.
		4th	Ports as logistics hub	Students understand occurrence factor of ports as logistics hub.
		5th	Ports as logistics hub	Students understand factor of ports as logistics hub.
		6th	Build up to logistics base in port	Students understand devepopment of logistics base and it's role.
		7th	Build up to logistics base in port	Students understand devepopment of logistics base and it's role.
		8th	Build up to logistics base in port	Students understand devepopment of logistics base and it's role.
	2nd Quarter	9th	Character of port logistics	Students understand five character of port logistics.
		10th	Character of port logistics	Students understand five character of port logistics.
		11th	Free trade zone	Students understand system of free trade zone and FAZ.
		12th	Management of Information	Students understand the purpose and background of port logistics EDI.
		13th	Outsourcing of ports	Students understand the role of 3 PL and the background of its occurrence.
		14th	Multimodal transportation	Students understand the mechanism of multimodal transportation. In addition, understand the relationship with port logistics industry and the position of forwarders.
		15th	A terminal examination	Teacher confirms achievement degree of each student for all lectures.
		16th	Return answer papers and explain about model answer	Students and teacher confirm score of examination and achievement of this subject.

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	100	0	0	0	0	0	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	100	0	0	0	0	0	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	International Relations

Course Information

Course Code	0042	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	Documents distributed		
Instructor	Ebihara Tsuyoshi		

Course Objectives

1. Students can understand the cocepts, the theories and the frameworks of international relations.
2. Students can understand the major international orders from the Modern period to the contemporary era.
3. Students can understand the international relations in the East Asia region including Japan Sea rim from the aspects of the Japan's bilateral relations with the countries in the region.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Students can properly understand the cocepts, the theories and the frameworks of international relations.	Students can understand the cocepts, the theories and the frameworks of international relations.	Students cannot understand the cocepts, the theories and the frameworks of international relations.
Evaluation 2	Students can properly understand the major international orders from the Modern period to the contemporary era.	Students can understand the major international orders from the Modern period to the contemporary era.	Students cannot understand the major international orders from the Modern period to the contemporary era.
Evaluation 3	Students can properly understand the international relations in the East Asian region including Japan Sea rim from the aspects of the Japan's bilateral relations with the countries in the region.	Students can understand the international relations in the East Asian region including Japan Sea rim from the aspects of the Japan's bilateral relations with the countries in the region.	Students cannot understand the international relations in the East Asian region including Japan Sea rim from the aspects of the Japan's bilateral relations with the countries in the region.

Assigned Department Objectives

Teaching Method

Outline	This course focuses on the way of understanding the reality of international relations formed by the various actors' behaviors with the analytical frameworks of international relations.
Style	This course consists of two parts. In the first part, the instructor will teach the basic concepts and theories as the important elements of the framework of international relations, and then, will teach the major international orders since the modern period in order to let students understand the characteristics of the international order after Cold War. In the second part, the instructor will teach the analytical framework of the states' power under the trend of globalization, and then students will try to analyze the real situations of international relations in the East Asia region including Japan Sea rim with the framework.
Notice	In this course, students must read and summarize the main points of the papers or books before the class. Because the instructor values the contents of the papers in the evaluation, it is neccesary for students to write papers according to the instructions.

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Course orientation	Students can understand the course contents and goal.
		2nd	Main theme of the international relations / Characteristics of international society	Students can understand the main theme of international relations and the characteristics of international society.
		3rd	Major actors of international relations	Students can understand major actors of international relations
		4th	Theory of international relations #1	Students can understand the the Realist Theories of international relations.
		5th	Theory of international relations #2	Students can understand the the Liberalist Theories of international relations.
		6th	International relations in Modern times #1	Students can understand the formation of the Modern international relations.
		7th	International relations in Modern times #2	Students can understand the major international orders from the WWI to WWII.
		8th	International relations in Modern times #3	Students can understand the major international orders during the Cold War.
	4th Quarter	9th	International relations in Modern times #4	Students can understand the transfomation of the international order after the Cold War.
		10th	Globalization and states #1	Students can understand the concept of globalization and its influence on states.
		11th	Globalization and states #2	Students can understand the power of states under the globalized international society.
		12th	Analysis of the international relations in the East Asian Region including Japan Sea rim #1	Students can collect data related the international relations in the East Asian Region including Japan Sea rim.

		13th	Analysis of the international relations in the East Asian Region including Japan Sea rim #2	Students can give a presentation and have discussion of the international relations in the East Asian Region including Japan Sea rim.
		14th	Analysis of the international relations in the East Asian Region including Japan Sea rim #3	Students can give a presentation and have discussion of the international relations in the East Asian Region including Japan Sea rim.
		15th	Analysis of the international relations in the East Asian Region including Japan Sea rim #4	Students can give a presentation and have discussion of the international relations in the East Asian Region including Japan Sea rim.
		16th	Conclusion and evaluation	

Evaluation Method and Weight (%)

	Examination	Presentation	homework	Behavior	Portfolio	Paper	Total
Subtotal	0	15	15	0	0	70	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	0	15	15	0	0	70	100
Interdisciplinary Ability	0	0	0	0	0	0	0

Toyama College	Year	2020	Course Title	Biological Information Engineering

Course Information

Course Code	0043	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	Tsukada Akira		

Course Objectives

After learning this course the students should be able to:
1. Describe the foundations of electroencephalography.
2. Perform quantitative measurement of electroencephalography by their own design and implement system.
3. Understand the fundamental digital signal processing and apply some filters to the wave.

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Be able to describe the electroencephalography in detail.	Be able to describe the foundations of electroencephalography.	Be not able to describe the foundations of electroencephalography.
Evaluation 2	Be able to perform quantitative measurement of electroencephalography by their own implement system.	Be able to perform quantitative measurement of electroencephalography	Be not able to perform quantitative measurement of electroencephalography
Evaluation 3	Be able to describe the digital signal processing well and apply some filters to the wave with effect.	Be able to describe the digital signal processing and apply a filter to the wave.	Be not able to describe the digital signal processing

Assigned Department Objectives

Teaching Method

Outline	One of the biological engineering purposes is to find ways in which the structures and functions of living organisms can be used as models for the design and engineering of materials and machines. This subject focuses on biomedical measurement, beginning with study of electroencephalography(EEG), following to design and implement the measurement devices, following to data acquisition and finally to retrieval and analysis.
Style	Lectures led by both teacher and students Design, implement and experimentation by students Presentations by students
Notice	Prerequisite: Knowledge of op-amp based circuit, digital signal processing, programming. This subject is open to students having an interest in biological engineering and information system design with the responsibility to carry out a team project. The recognition of credit requires 60 points or more rating.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	(1) Bio-Information Engineering (2) Outline of the subject
		2nd	About electroencephalographs(EEG)	Study of electroencephalography(EEG) and its measurement system
		3rd		Research of recent developments in applying EEG
		4th	Measurement of EEG	Study of instrumentation amplifier
		5th		Study of analogue filters
		6th	Data aquisition	Study of analog-to-digital converter
		7th		Study of digital signal processing, suach as FIR filter, FFT and coherent averaging
		8th	Course Project - Implementation of EEG measurement system	Plan and discuss the development of the measurement system with teamwork
	2nd Quarter	9th		Understand an individual role in the team and work with responsibility
		10th		Understand an individual role in the team and work with responsibility
		11th		Understand an individual role in the team and work with responsibility
		12th	Measurement of EEG	Measurement of EEG or investigation of failure cause
		13th	Data analysis	Data analysis and concideration
		14th	Results briefing	Presentation and discussion
		15th	Final exam	Final exam
		16th	Summary	Summarize the study content and confirm grades

Evaluation Method and Weight (%)

	Examination	Experimental Participation and Presentation	Behavior	Portfolio	Other	Total
Subtotal	40	60	0	0	0	100
Basic Ability	10	0	0	0	0	10
Technical Ability	30	50	0	0	0	80
Interdisciplinary Ability	0	10	0	0	0	10

Toyama College	Year	2020	Course Title	Network System

Course Information

Course Code	0044	Course Category	Specialized / Elective
Class Format	Lecture	Credits	Academic Credit: 2
Department	Control Information Systems Engineering Course	Student Grade	Adv. 2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	CISCO CCENT/CCNA Routing and Swittychng ICND1v3.0(SHOEISHA)		
Instructor	Aso Tsukasa		

Course Objectives

Through this course, understanding of the following will be facilitated.
(1) The roles of switching devices on TCP/IP architecture
(2) Design of IP addressing with the subnet in an IP network
(3) Establishing a networking in a virtual LAN environment with switching technologies
本講義を通じて、次の項目を理解することを目標とします。
(1) TCP/IPアーキテクチャに対応付けて，ネットワーク構成に必要な中継機器の役割を説明できる。
(2)サブネットを含むIPネットワークのIPアドレスの計算ができる。
(3)スイッチを用いてVLANを含むネットワーク設定ができる。

Rubric

	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Evaluation 1	Clearly understands TCP/IP architecture and the overview of protocols, and displays the ability to explain the role of each protocol in detail. TCP/IP階層とプロトコルの全体像，並びに個々のプロトコルの役割について詳細を説明できる。	Ability to explain the overview and concept of TCP/IP architecture and the roles of protocols. TCP/IPの各階層とプロトコルについての全体像と概念，および役割について説明できる。	Unable to explain the TCP/IP architecture and protocols. TCP/IPの各階層とプロトコルを説明できない。
Evaluation 2	Clearly understands the network devices in IP networking, and displays the ability to make a plan for IP addressing and subnetting in the network. IPネットワーク構成に必要な中継機器を理解して，サブネットを含むIPアドレス計算ができる。	Ability to explain the network devices of IP networking in general. Can carry out calculations to assign IP address in the IP network. IPネットワークを構成する中継機器について説明でき，IPアドレスの計算を行える。	Unable to explain IP networking and IP addressing. IPネットワークの構成やIPアドレスについて説明できない。
Evaluation 3	Clearly understands virtual LAN networking and displays the ability to configure virtual LAN networks on switches. VLANの概念を理解しており、スイッチを用いて，VLANを含むネットワーク設定ができる。	Ability to explain LAN networks without virtual LANs. Can carry out configurations of LANs on switches without virtual LANs. VLANを含まないネットワーク構成について説明でき、スイッチを用いて，VLANを含まないLANを構成することができる。	Unable to carry out the fundamental procedure to configure a LAN using switches. LANを構成するためのスイッチを用いた基本的な手順を実行することができない。
Evaluation 4	Clearly understands the role of routing devices and displays the ability to propose and configure routing devices used for routing control between LANs. ルータの役割を理解しており、ルータへの適切な経路制御を設計して設定することができる。	Ability to configure the routing control of routing devices according to the given specifications. ルータに指定された経路制御を設定することができる。	Unable to carry out the fundamental procedure for configuring routing devices. ルータへの経路制御設定を行うことができない。

Assigned Department Objectives

Teaching Method

Outline	Networking is one of the foundational technologies in system development. In this course, you will learn about the principles and fundamental techniques required for designing and implementing network systems. This course consists of lectures and practices that are organized to facilitate the learning of practical methods of networking with layer 2 and layer 3 switches. ネットワークはシステム開発において欠くことことのできない技術である。本講義では，ネットワーク構築に必要な知識と通信制御のための技術について学ぶ。座学と演習の両面で，スイッチやルータを用いたネットワーク設計と構築の手順を踏まえながら実践的な知識を深める。
Style	(1)For the purpose of understanding the procedure of designing networks, lectures and exercises faciliate the learning of practical methods of configurations. (2)For the purpose of learning practical methods of networking, students are required to build networks according to the specification of assigned network configurations. (1)構築過程を明確に意識させるために、設計を座学として行い、その実装を演習として行う。 (2)課題を設定して，その実現に取り組み，ネットワーク設定と実践的なネットワーク構築を行う。
Notice	

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance ガイダンス	Guidance: Discuss the goals and structure of this course. 講義の目的と進め方について理解する。
		2nd	Networking fundamentals -1- ネットワーク構築基礎-1	Introduce TCP/IP networking and IP addressing. TCP/IP階層の概要とIPアドレスについて学ぶ。

		3rd	Networking fundamentals -2- ネットワーク構築基礎-2	Learn the role of the MAC address in Ethernet LAN, data packet structures and concepts of VLAN. イーサネットLANにおけるMACアドレスの役割およびデータパケットの構成とVLANの概念について学ぶ。
		4th	Networking fundamentals -3- ネットワーク構築基礎-3	Learn about designing and implementing route information on the network. ネットワークでの経路情報の設計とその実装方法について学ぶ。
		5th	Exercise in fundamental networking -1- ネットワーク構築演習-1	Perform exercise to apply current knowledge for designing LANs without VLAN. ここまでの内容について、VLANを含まないLANを設計するために必要な応用力を演習を通じて確認する。
		6th	Exercise in fundamental networking -2- ネットワーク構築演習-2	Perform exercise to apply current knowledge for designing VLANs. ここまでの内容について、VLANを構築するために必要な応用力を演習を通じて確認する。
		7th	Review of fundamental networking 学習内容の確認	Midterm examination to assess current ability. ここまでの内容について確認試験により確認する。
		8th	Technology trends in networking and applications. ネットワークの技術動向	Introduction to the trends in networking and application technology. 最近のネットワーク応用技術を取り上げて概要を学ぶ。
	2nd Quarter	9th	Practical applications of networks -1- ネットワーク構築実習-1	Practical training in setting methods required for LAN configurations using switches (1). スイッチを用いてLAN構成に必要な設定方法に関して，実習により学ぶ。
		10th	Practical applications of networks -2- ネットワーク構築実習-2	Practical training for LAN and switches (2). スイッチを用いてLAN構成に必要な設定方法に関して，課題実習を通じて学ぶ。
		11th	Summary of the practical applications of networks (1,2) ネットワーク構築演習1,2のまとめ	Confirm exercise contents, write reports and check (1,2). 演習内容を確認し、報告書の作成通じてまとめて定着を図る。
		12th	Practical applications of networks -3- ネットワーク構築実習-3	Practical exercise in setting-up networking equipment (3). ネットワーク機器の設定方法の実習を行い，実践的に学ぶ。
		13th	Practical applications of networks -4- ネットワーク構築実習-4	Practical exercise on building and setting a LAN network (4). ネットワーク機器の設定によりLANを構築する実習課題を通じて，実践的に学ぶ。
		14th	Summary of the practical applications of networks (3,4) ネットワーク構築実習3,4のまとめ	Confirm exercise contents, write reports and check (3,4). 実習内容を確認し、報告書を作成を通じてまとめる。
		15th	Final exam. 期末試験	Final examination. 学習内容に関する試験を行う.
		16th	Summary 講義のまとめ・成績評価・確認	Summarize the study content and confirm grades. 学習内容の要約を行う。成績確認を行う。

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	80	20	0	0	0	0	100
Basic Ability	40	10	0	0	0	0	50
Technical Ability	40	10	0	0	0	0	50
Interdisciplinary Ability	0	0	0	0	0	0	0