令和6年度 学習支援計画書

							「担当教員名」	」欄の*=実務総	経験のある教員
ł	受業科目区分	7	科目名		単位	科目コード	開講時期	授業	形態
国際理 一般科 選択	• • • •		心理学		2	510600	前学期	講義/	´ 学修
対象学年	F	担当教員名		居室		電子メール I	D	オフィス	ペアワー
5年	<u> </u>	平 真由子		1 • 304				授業時	予約
			授業科	目の学習義	故育目標				
1	キーワード		心理学けて伊	しけけったのから	た社会的わせ	学習教育目	標 なレベルの行動	の北早にもる	
1	心理学の基礎知						て、また社会人		-
2	メンタルトレー	ニング					のキャリア形成 21 人間に対す		-
3	自己理解	と、②人の心に関する講義や討議で得た知識やスキルをもとに、目己成長につなけ							
4	他者理解		目標とする。						
5	自己成長								
	美け学校単位でなる	をめ 1 単位な5		の概要および当			公司日本の自己	受白羽た行っ	ア下キい
	義は学修単位である 目では心理学につい			ナ自とし、50	ッ刀1文耒15世	コパニメリ し くらし	刃が凹分り日	ナ日首を11つ	лст <u>с</u> к,°
心理	り上げるトピック> 理学の歴史、心と脳 達の心理学、社会や					き揮の心理学	、記憶の心理	学、性格の心	理学
への理解 授業F 評価 表、授 せずF判	らの各項目について 解を深め、自己理解 内で内容理解を深め こついては、各項目 業内での演習の実施 定(不合格)となる 書および参考書・リ	、他者理解、自己 るために、事前に に関する講義の と振り返りの提出 5。	2成長につな こ予習を行う 内容と基本的 出、および達	げていく。 ことを推奨す 事項の理解を	⁻ る。予習の ≧確認する†)仕方につい こめに、小テ	マは、第1回 マトを3回、レ	の講義で説明 ~ポート課題!]する。 2回、成果発
教科 参考	書:心理学概論[株式 書:指定なし パドブック:指定なし	式会社サイエンス							
			履修に	必要な予備知識	識や技能				
	学に対する興味関心 −ポイントの作成、								基本的なス
	必要とする。 を通して自己理解や	仙老玾齪を涩め〕	トらとすス能	度 スキルア	アップを日ま	ヨスウレオス	次埶が望まれ	ス	
№ 教	育目標(DP)				達成すべき行		<u>安力//主动//</u>	· 2 0	
(1)	記号表記) b, h, i 心理学のま	基礎用語をだいたい	理解すること						
2	1.1.:	を 礎概念や理論につ		- •	とができる。				
3 b,	c, d, e, h, i 心理学の社	見点から、自他へ理	解を深めるこ	とができる。					
(<u></u>		見点から自己や事例	について思考	し、文章やプレ	~ゼン等で説	明することが	できる。		
5 6	e,i 学生が達成	戈すべき行動目標を	自己評価でき	る。					
0				達 成 度	評価				
指標と		方法 武 験	クイズ 小テスト	レポート			ポートフォリオ	その他	合 計
	総合評価割合	0	45	25	20	0	5	5	100
知	識を取り込む力	0	33	5	5	0	0	0	43
	考・推論・創造する力		12	15	5	0	0	0	32
	ラボレーションとリーダーシッ	- ·	0	0	0	0	0	0	0
	表・表現・伝達する力		0	5	5	0	0	0	10
	習に取組む姿勢・意欲	v	0	0	5	0	5	5	15
-	指標で示す数値内訳に	Ŷ	-	-		v	0	0	10

評価方法	行動	目標	評 価 の 実 施 方 法 と 注 意 点
	1		
	2		
⇒.b. ⊯∆	3		
試 験	4		
	5		
	6		
	1	ν	
	2	レ	・小テストは3回実施(第4回、第8回、第11回の授業で実施):複数の単元をまとめて試験範囲とし、授業の内容理解度を確認する。記号選択式問題とし、3回の合計点を15%に換算して最終評価に算入する。
クイズ	3		
小テスト	4		・達成度確認試験(第14回の授業で実施):授業全体を試験範囲とし、授業の内容の理解度を確認する。記号 選択式問題と記述式問題の混合型で出題する。得点を30%に換算して最終評価に算入する。
	5	V	選択我问題と記述我问題が成古生て田恩する。特点を30%に狭身して取除計画に身八する。
	6		
	1	レ	
	2	V	・第5回の授業の中でレポートを作成し、提出する。レポート点を20%に換算し、最終評価に算入する。
レポート	3	V	・第5回の投業の中でレホートを作成し、旋出する。レホート点を20%に換算し、東終評価に昇入する。 ・第12回の特別講義を受講し、レポートを提出する。レポート点を5%に換算し、最終評価に算入する。
	4	レ	
	5		
	6		
	1	V	・第11回の授業で、各自、自分自身についてと興味のある心理学のトピックについてのプレゼンを行う。その際
	2		に使用した発表資料、発表の態度、振り返りも成果発表として評価する。
成果発表	3	V	
(口頭・実技)	4	V	
	5		
	6 1		
	2		
	3		
作品	4	-	
	(4)		
	6		
	1		
	2		
	3	<u> </u>	 ・達成すべき行動目標①~④についての自己評価と、その理由をポートフォリオ内に記述する。期限内に記述
ポートフォリオ	4		し提出する。5点満点で採点する。
	5	V	
	6		
	1		
	2		
7. 00 /14	3	ン	 毎時間、テーマに合わせて自己の振り返りを入力して提出する。
その他	4	V	 ・演習の参加状況、授業態度について評価する。
	5	レ	
	6		

具体的な達成の目安

理想的な達成レベルの目安	標準的な達成レベルの目安
・心理学についての知識を獲得し、授業で取り上げたテーマにつ	・心理学についての知識を獲得し、授業で取り上げたテーマに
いて、自ら説明することができる。	ついて、ある程度説明することができる。
・心理学に関する知識の獲得や、授業での演習を通して、自己理	・心理学に関する知識の獲得や、授業での演習を通して、自己
解、他者理解を深め、実際に役立てることができる。	理解、他者理解を深めることができる。
・心理学の概念や理論を生かして、個人や社会を理解し、新たな	・心理学の概念や理論を生かして、個人や社会を理解し、新たな
アイディアの創出につなげることができる。	アイディアの創出につなげたいという意欲を高めることができ
	る。

CLIP学習プロセスについて

一般に、授業あるいは課外での学習では:「知識などを取り込む」→「知識などをいろいろな角度から、場合によってはチーム活動として、考え、推論し、創造する」→「修得した内容を表現、発表、伝達する」→「総合的に評価を受ける、GoodWork!」:のようなプロセス(一部あるいは全体)を繰り返し行いながら、応用力のある知識やスキルを身につけていくことが重要です。このような学習プロセスを大事に行動ください。
 ※学習課題の時間欄には、指定された学習課題に要する標準的な時間を記載してあります。学修単位科目については、各授業に応じた時間(例えば2単位科目の場合、予習・復習で200分/週)を取るよう努めてください。詳しくは教員の指導に従って下さい。

回数 日付	学習内容	授業の運営方法	学習課題(予習・復習)	時間(分)
	 ・科目ガイダンス ・「心理学とは?」 心理学の特性について理解する。心理学について学習者が持つイメージや関心を明らかにする。 ・授業の振り返り(提出)とアンケート 	講義、演習、質疑応答	【復習】 講義内容の振り返り	200
2	 「心理学史」 心理学はいつ誕生し、どのように発展し、現在どうなっているのかを理解し、心理学の功績と課題について考える。 ・授業の振り返り(提出) 	講義、演習、質疑応答	【予習】 第2章を読んで、大まかに内容を 理解し、授業で深めたいことを明 らかにしてくる。 【復習】講義、議論内容の振り返 り	200
3	 「感覚と知覚と心理学」 脳のはたらきと、感覚と知覚についての知識を獲得し、自己理解へとつなげる。 ・授業の振り返り(提出) 	講義、演習、質疑応答	【予習】 第3章を読んで、大まかに内容を 理解し、授業で深めたいことを明 らかにしてくる。 【復習】第1回~第3回の講義、議論 内容の復習	200
4	・小テスト① ・「パフォーマンス発揮と心理学①」 パフォーマンス発揮に関する心理学の知識やスキルに ついての理解を深める。 ・授業の振り返り(提出)	小テスト、講義、演習、質疑 応答	【予習】 これまでの自己のパフォーマンス 発揮に関する記憶を整理する。 【復習】 講義、演習内容の復習	200
5	 「パフォーマンス発揮と心理学②」 パフォーマンス発揮に関する知識やスキルについての 理解をもとに、自己のパフォーマンス発揮に向けたメンタルトレーニングメニューを作成する。*授業内で レポート提出 	講義、レポート作成	【予習】 講義内容をもとに、自己の覚醒特 性、効果的な方法についての分析を 行う。	200
6	 ・「記憶・学習と心理学」 記憶や学習に関する心理学の知見を理解し、自己の記 憶や学習方法について振り返る。 ・授業の振り返り(提出) 	講義、演習、質疑応答	【予習】 第4章5章を読んで、大まかに内容を 理解し、授業で深めたいことを明ら かにしてくる。 【復習】 講義、演習の内容の振り返り	200
7	 ・「発達と心理学」 人間の発達についての理解を深め、発達において最も 必要なものは何かについて議論する。 ・授業の振り返り(提出) 	講義、演習、質疑応答	【予習】 教科書第8章を読んで、1シートに 内容をまとめ、深めたいことを明 らかにしておく。 【復習】 講義、演習の内容の振り返り	200
8	 ・小テスト② ・「やる気と心理学」 やる気のメカニズムについて理解し、自身や他者のやる気を高める方法について考える。 ・授業の振り返り(提出) 	小テスト、講義、演習、質疑応 答	【予習】 教科書第7章を読んで、1シートに 内容をまとめ、深めたいことを明 らかにしておく。 【復習】 第4回~第7回の講義、演習の内容 の復習	200
9	 ・「性格と心理学」 性格に関わる心理学の知見を理解し、自己や他者の理解につなげる。 ・授業の振り返り(提出) 	講義、演習、質疑応答	【予習】 性格やパーソナリティという用語 やそれを関連する心理学の知見を 収集しておく。 【復習】 講義、演習の内容の振り返り	200
10	 ・「社会と心理学」 社会が人間の心理にどのような影響を与えているのか、また人間の心理が社会にどのような影響を与えているのかを考察する。 ・授業の振り返り(提出) 	講義、演習、質疑応答	【予習】 教科書第9章を読んで、1シートに 内容をまとめ、深めたいことを明 らかにしておく。 【復習】 第8回〜第10回の講義、演習内容 の復習	200

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回数 日付	学習内容	授業の運営方法	学習課題(予習・復習)	時間(分)
	 ・小テスト③ ・「自己理解・他者理解と心理学」 性格に関わる心理学の知見をもとに、他者に自分自身 についてプレゼンする。また、他者のプレゼンを聞き、他者理解につなげる ・授業の振り返り(提出) 	小テスト、資料作成、成果発表	【予習】 プレゼンの事前準備	200
12	 「健康・臨床心理学」① 臨床現場で活躍する専門家から、実際の現場での話を 聞き、学びを深める。 レポート作成(提出) 		【予習】 特別講義の資料を事前に確認して おく 【復習】 講義や議論の内容の振り返りをも とにしたレポートの作成(提出)	200
/	・「健康・臨床心理学」② 健康・臨床心理学について理解を深め、自己のストレ スマネジメント力の向上につなげる。 ・授業の振り返り(提出)		【予習】 教科書第10章を読んで、1シート にまとめ、大まかに内容を理解し 、深めたいことを明らかにしてお く。 【復習】 第1回〜第13回までの内容の復習	200
14	 ・これまでの講義内容の確認 ・達成度確認試験(小テスト④) 	質疑応答、小テスト④	【復習】 これまでの授業内容について振り返 る。	200
15	 ・自己分析シートの作成 ・総合議論 ・自己点検 	演習、議論、自己点検	【復習】 今後の人生に授業での学びを援用す る方法について考える。	200

							In	structor with '	*"means an ins	ructor with compar	ly experience.
	Field		Course N	Jame		Credits		urse ode	Semester	Class S	Style
Dept. S		~								Lectu	ıre
General		Comp	rehensive E	inglish	IIA (a)	1	511	300	First	Clas	SS
Require											
Target Grade		Instructor Office E-mail Address Office H							Hours		
5REYNOLDS, StephanieKanazawa C: 31.104									Monday 16	:30-17:30	
				С	ourse Object	ives					
	Key	words (10.5pt)					-	-	es (10.5pt)		
1	Critical T	hinking			ourse, studer						I
2	Communi	cation								sions, writing s and gain k	
3	Engineeri	ng								ly, students v	
4	Writing									strategies in	
5	Presentati	on	Ċ	liscussi	ons, presenta	tions, an	nd wri	ting.			
			urse Descri	ption a	nd Expectatio	ons for St	tudent	s (10.5pt))		
		are and participate	in English	discuss	ions using th	e langua	ge ski	lls that a	re already k		
		tice and apply new									ng.
Students	s will write	e one reaction/respo	onse essay a	and pre	pare one coll	aborativ	e, rese	earch-bas	ed presenta	tion.	
students Students	It will be important for students to share their own opinions in relation to information from a variety of sources. Therefore, students will learn how to appropriately reference and cite sources. Students should be prepared with a binder or folder to keep handouts, writing tools for in-class work, and laptop computers for preparing presentations, researching related information, downloading class materials, and submitting online assignments.										
Textbo Referen											
T	lists Excel	Ū.	/Skills Nee	ded to '.	Take This Co	urse (Pre	erequi	sites) (10	.5pt)		
	diate Engli omputer sk										
	Shiputer sk	1115									
No.	Program Objectives			Ta	rget Abilities	for Stud	ents (9pt)			
1	d S	tudents will be able to	share opinio		iget Abilities	101 Stud					
2	h S		share opinio	ns and ic	0			lish.			
	P	tudents will be able to	tudents will be able to think critically about various topics related to environmental and biological engineering.								
3		tudents will be able to tudents will be able to	think critical	ly about	leas through di various topics	scussions	in Eng		nd biological	engineering.	
3 ④	g S	tudents will be able to	think critical write a react	lly about ion/resp	leas through di various topics onse essay.	scussions	in Eng		nd biological	engineering.	
-	g S c S	tudents will be able to tudents will be able to	think critical write a react make presen	lly about ion/respo tations i	leas through di various topics onse essay. n English.	scussions related to	in Eng	onmental a		engineering.	
 ④ ⑤ 	g S c S c S	tudents will be able to tudents will be able to tudents will be able to	think critical write a react make presen apply effecti	lly about ion/respo tations i ve comr	leas through di various topics onse essay. n English. nunication stra	scussions related to tegies in p	in Eng	onmental a		engineering.	
4	g S c S c S	tudents will be able to tudents will be able to	think critical write a react make presen apply effecti	lly about ion/respo tations i ve comr d cite so	leas through di various topics onse essay. n English. nunication stra urces appropria	scussions related to tegies in p ately.	in Eng	onmental a		engineering.	
④⑤⑥	g S c S c S	tudents will be able to tudents will be able to tudents will be able to	think critical write a react make presen apply effecti	lly about ion/respo tations i ve comr d cite so	leas through di various topics onse essay. n English. nunication stra urces appropris valuation Cri	scussions related to tegies in p ately. teria	in Eng enviro	onmental a			Total
④⑤⑥	g S c S b S	tudents will be able to tudents will be able to tudents will be able to tudents will be able to	think critical write a react make presen apply effecti reference an	lly about ion/resp tations i ve comr d cite so E	leas through di various topics onse essay. n English. nunication stra urces appropris valuation Cri	scussions related to tegies in p ately. teria	in Eng enviro presenta ations	ations and	writing.		Total
(4) (5) (6) Criteria	g S c S b S a and Ratio	tudents will be able to tudents will be able to tudents will be able to tudents will be able to Evaluation Method uation Ratio	think critical write a react make presen apply effecti reference an Exams 0	lly about ion/resp tations i ve comr d cite so E Quizz 20	leas through di various topics onse essay. n English. nunication stra urces appropria valuation Cri es Reports 30	scussions related to tegies in p ately. teria s Present 30	in Eng enviro oresenta ations	ations and Works	writing. Portfolios	Others 0	100
G Criteria	g S c S c S b S and Ratio Total Eval	tudents will be able to tudents will be able to tudents will be able to tudents will be able to Evaluation Method uation Ratio ture knowledge	think critical write a react make presen apply effecti reference an Exams 0 0	lly about ion/respo tations i ve comm d cite so E Quizz 20 5	leas through di various topics onse essay. <u>n English.</u> nunication stra urces appropri- valuation Cri es Reports 30 10	scussions related to tegies in p ately. teria s Present 3(5	in Eng enviro presenta ations	ations and Works 0 0	writing. Portfolios 20 5	Others 0 0	100 25
(4) (5) (6) Criteria	g S c S c S b S a and Ratio Total Eval Ability to cap	tudents will be able to tudents will be able to tudents will be able to tudents will be able to tudents will be able to Evaluation Method uation Ratio ture knowledge ak, reason and create	think critical write a react make presen apply effecti reference an Exams 0 0 0	lly about ion/resp tations i ve comr d cite so E Quizz 20 5 5 5	leas through di various topics onse essay. n English. nunication stra urces appropria valuation Cri es Reports 30 10 10	scussions related to tegies in p ately. teria s Present 30 5 5 5	in Eng enviro presenta ations	Works 0 0 0 0 0 0	writing. Portfolios 20 5 5 5	Conters O O O O	100 25 25
(4) (5) (6) Criteria	g S c S c S b S a and Ratio Total Eval Ability to cap Ability to thir Collaboration	tudents will be able to tudents will be able to tudents will be able to tudents will be able to Evaluation Method uation Ratio ture knowledge tk, reason and create	think critical write a react make presen apply effecti reference an Exams 0 0 0 0 0	lly about ion/response tations i ve commend d cite so E Quizz 20 5 5 5 0	leas through di various topics onse essay. n English. nunication stra urces appropria valuation Cri valuation Cri es Reports 30 10 10 0	scussions related to tegies in p ately. teria 3 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	in Eng enviro presenta ations	works 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	writing. Portfolios 20 5 5 5 5	 Others 0 0 0 0 0 	100 25 25 15
G Criteria Comprehensive Strength Criteria	g S c S c S b S a and Ratio Total Eval Ability to cap Ability to thir Collaboration	tudents will be able to tudents will be able to tudents will be able to tudents will be able to tudents will be able to Evaluation Method uation Ratio ture knowledge ak, reason and create	think critical write a react make presen apply effecti reference an Exams 0 0 0	lly about ion/resp tations i ve comr d cite so E Quizz 20 5 5 5	leas through di various topics onse essay. n English. nunication stra urces appropria valuation Cri es Reports 30 10 10	scussions related to tegies in p ately. teria s Present 30 5 5 5	ations	Works 0 0 0 0 0 0	writing. Portfolios 20 5 5 5	Conters O O O O	100 25 25

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Evaluation Method	Targ Abil	get lity	Evaluation Methods and Important Points (10.5pt)						
	1								
	2								
	3								
Exams	4								
	5								
	6								
	1		Several vocabulary, written response, reading/listening comprehension, and/or skill review						
	2	V	assessments based on the content of in-class activities and assignments (20%)						
	3	5							
Quizzes	(3)		Feedback will be given in the next class session.						
		V							
	5								
	6		One reaction/recommended association $(200/)$						
	1		One reaction/response essay (30%) Essay includes an outline, first draft, 2 writing conferences, and final draft.						
	2	レ	Essay mendees an outline, first draft, 2 withing conferences, and find draft.						
Reports	3	V	Feedback will be given during the next class session.						
-	4								
	5	V							
	6	V							
	1		One poster presentation/discussion project (30%)						
	2	u	Project includes an outline, delivery & participation in discussion, and self- evaluation/reflection.						
Presentations	3		evaluation/reflection.						
Tresentations	4	\checkmark	Feedback will be given during the next class session.						
	5	$ \nu$							
	6	\checkmark							
	1								
	2								
Works	3								
W OIKS	4								
	5								
	6								
	1	\checkmark	In-class or assignment handouts for preparation and review of discussion activities (20%)						
	2	\checkmark							
D (C 1)	3		Feedback will be given during the next class session.						
Portfolios	4								
	5	$\boldsymbol{\nu}$							
	6								
	1								
	2								
	3								
Others	4								
	5								
	(6)								
Specific Achieve	\sim	Crite	ria						
			al Achievement (10.5pt) Description of Standard Achievement (10.5pt)						
			writing and presentations. Comprehensible writing and presentations.						
Discuss 100% in f	luent	Engl	ish. Discussions mostly in English.						

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1 /	Introduction/Reading I Students will be introduced to the syllabus and contents of the course. Students will participate in brainstorming and background building communication activities.	Brainstorming as a pre- reading technique, individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 1	50
2 /	Theme I: Bioethics (1) Students will review and discuss topics related to the reading or videos. Quiz 1	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 2	50
3 /	Theme I: Bioethics (2) Students will review and discuss topics related to the reading or videos. Quiz 2	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 3	50
4	Theme I: Bioethics (3) Students will review and discuss topics related to the reading or videos. Quiz 3	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 4	50
5	Theme I: Bioethics (4) Students will review and discuss topics related to the reading or videos. Quiz 4	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities.	50
6	Reaction/Response Students will brainstorm ideas and opinions. Students will research related information to support their ideas and learn how to appropriately reference sources to write a reaction/response essay. <i>Outline Returned</i>	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Draft 1	50
	Reaction/Response Students will brainstorm ideas and opinions. Students will research related information to support their ideas and learn how to appropriately reference sources to write a reaction/response essay. <i>Draft 1 Returned</i>	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Final Draft due Class 9	50
	Reading II Students will participate in brainstorming and background building communication activities.	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 1	50
	Theme: Technology & Society (1) Students will review and discuss topics related to the reading or videos. Quiz 5	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 2	50
10	Theme: Technology & Society (2) Students will review and discuss topics related to the reading or videos. Quiz 6	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 3	50

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Theme: Technology & Society (3) Students will review and discuss topics related to the reading or videos. <i>Reaction/Response Essay Returned</i> Quiz 7	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 4	50
/	Theme: Technology & Society (4) Students will review and discuss topics related to the reading or videos. Quiz 8	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 5	50
/	Poster Presentation/Discussion Preparation Students will brainstorm ideas and opinions. Students will research related information to support their ideas and learn how to appropriately reference sources to participate in a poster presentation/discussion.	Individual, pair, and group work; discussion	Review: Complete Presentation/Discussion Outline	50
/	Poster Presentation/Discussion Students will present and discuss ideas, opinions, and research related to the topic in a poster presentation/discussion. Students will complete a written reflection.	Individual, pair, and group work; discussion	Review: Complete written reflection	50
/	Self-Evaluation Students will be given oral and written feedback both overall and individually on their work. Students will also be encouraged to share their feedback about the course. <i>Presentation evaluation returned</i>	Individual, pair, and group work; discussion		

					2 - 5yna			Instructo	or with "*	"means an instru	uctor with compar	y experience.
	Field		Course N	Name		С	redits	Course Code	Se	emester	Class S	Style
Dept.											Lectu	ıre
Genera		Comp	orehensive H	english	IIA (b)		1	511300		First	Clas	SS
Requir Target	;	Instructor			Offic	e	E	-mail A	ddress		Office I	Hours
Grade 5		REYNOLDS, Ste	phanie		Kanazaw						Friday 15:0	0-17.00
					31.10							
				(Course O	bjective		ing Ohi	otivos	(10.5pt)		
1		ywords (10.5pt)	1	In this a	course s	tudents				-	nolish	
1	Critical 7 Commun	•	In this course, students will be able to further improve English communication skills while sharing opinions in discussions, writing, and								, and	
2]	present	ations. S	tudents	will app	ply criti	cal thi	nking skills	and gain k	nowledge
3	Engineer	ing									, students v	
4	Writing									nunication s	strategies in	
5	Presentat	ion			ions, pre	sentatio	ons, and	writing	•			
			ourse Descri									
		pare and participate										
		ctice and apply new te one reaction/resp										ng.
Suuell	ls will will	c one reaction/resp	onse essay	and pre	pare one	Conat	orative,	research	1-0488	u presentati	1011.	
It will b	be importa	nt for students to sh	hare their ov	vn opir	nions in 1	elation	to infor	mation	from a	variety of	sources. Th	erefore.
		n how to appropriat								· · · · · · · · · · · · · · · · · · ·		,
		e prepared with a b					writing t	ools for	in-cla	ss work, ar	nd laptop co	mputers
for prep	paring pres	sentations, research	ing related	informa	ation, do	wnload	ling class	s materi	als, an	d submittir	ng online as	signments.
Requir	ed Materia	als (textbooks, refer	ence books	, reserv	ed book	s) (10.5	pt)					
Textb	ooks: No	ne (Handouts)										
Refere	ence books	5:										
Reserv	ved books	:										
		Knowledge	e/Skills Nee	ded to	Take Th	is Cour	se (Prere	quisites) (10.5	pt)		
		lish ability										
Basic c	omputer s	kills										
No.	Program Objectives			Та	arget Abi	lities fo	or Studen	nts (9pt)				
1	d	Students will be able to	o share opinio	ons and i	deas throu	igh disci	issions in	English.				
2	h	Students will be able to	o think critica	lly abou	t various t	topics re	lated to er	nvironme	ntal and	d biological e	ngineering.	
3	g	Students will be able to	o write a react	tion/resp	onse essa	у.						
4	С	Students will be able to	o make preser	ntations i	in English	l						
5		Students will be able to					ies in pre	sentation	s and w	riting.		
6		Students will be able to				-				~		
					Evaluatio							
		Evaluation Method	Exams	Quiz		eports	Presentatio	ons W	orks	Portfolios	Others	Total
Criteri	a and Ratio			Z MIZI		F						1.0141
	Total Eva	aluation Ratio	0	20		30	30		0	20	0	100
Com	•	pture knowledge	0	5		10	5		0	5	0	25
Comprehensive Strength Criteria	Ability to the	ink, reason and create	0	5		10	5		0	5	0	25
nsive	Collaboratio	on and leadership	0	0		0	10		0	5	0	15
Strer	Announcement /	Expression / Communication	0	5		10	10		0	0	0	25
ìgth	Attitude and	motivation for learning	0	5		0	0		0	5	0	10
		own shown by Comprehe			is on oppro	•	÷	alace mor	•		1	-

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	5	$ \nu$							
	6	\checkmark							
	1								
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	(6)								
Specific Achieve	\sim	Crite	ria						
			al Achievement (10.5pt) Description of Standard Achievement (10.5pt)						
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	Theme: Technology & Society (1) Students will review and discuss topics related to the reading or videos. Quiz 5	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 2	50
10	Theme: Technology & Society (2) Students will review and discuss topics related to the reading or videos. Quiz 6	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 3	50

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
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								In	structor wi	$1 \text{m} \rightarrow \text{mea}$	ans an instru	ctor with compar	
	Field			Course N	Jame		Credits	Co	urse ode	Seme		Class S	
Dept. S Genera Requir	al		Compre	ehensive E	English	IIA (c)	1	511	300	Firs	st	Lectu Clas	
Target Grade		Ins	structor		Office E-mail Ad			uil Addı	ress		Office I	Hours	
5	5 UTSUNOMIYA, Takako					Kanazawa C: 31.104					N	Monday 15:00-17:00	
					C	Course Objec	tives						
	Ke	ywords (10.5	5pt)							ives (10		11.1	
1 2 3 4 5	Critical T Commun Engineer Writing Presentat	ication ing		c F a h	commu presenta about v now to	course, stude nication skil ations. Stude arious topics apply effections, present	ls while s nts will a related t ve and ap	sharin apply to eng pprop	g opini critical ineerin riate co	ions in d thinkir 1g. Addi	discussiong skills itionally	ons, writing and gain k , students v	nowledge vill learn
			Cou	rse Descri	ption a	nd Expectati	ons for S	tudent	ts (10.5	ipt)			
Student Student It will b students Student	ts will pract ts will writ be importat s will learr ts should b	pare and part ctice and app te one reaction nt for studen n how to app te prepared v sentations, re	bly new s on/respon nts to shar propriatel with a bin	trategies f nse essay a re their ow y reference nder or fol-	For effe and pre vn opin the and of der to l	ctive commu pare one col ions in relat cite sources. keep handou	nication laborativ on to inf ts, writin	in dis e, rese format g tool	cussion earch-b ion fro s for in	ns, pres based pr om a vai n-class v	sentation resentati riety of s work, an	is, and writi on. sources. Th id laptop co	erefore,
Textbo Refere Reserv	ooks: Not ence books ved books:	Kno Kno	ts)			ed books) (1 Take This Co		erequi	sites) (10.5pt)			
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Textbo Refere Reserv Interme Basic co No.	ooks: Not ence books ved books: ediate Engl omputer sl Program Objectives d s	ne (Handout 3: bish ability kills	ts) owledge/s	Skills Nee	ded to Ta Ta	Take This Co rget Abilitie deas through d	ourse (Pre s for Stuc	lents (in Eng	9pt) glish.				
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Textbo Refere Reserv Interme Basic co No. 1 2	Program Objectives d g g g	ne (Handout 3: lish ability kills Students will b Students will b	owledge/s	Skills Nee hare opinio hink critical vrite a react	ded to Ta Ta ns and io lly abou ion/resp	Take This Co rget Abilitie deas through d t various topic onse essay.	ourse (Pre s for Stuc	lents (in Eng	9pt) glish.			ngineering.	
Textbo Refere Reserv Interme Basic co No. 1 2 3	Program Objectives d g g g c g	ne (Handout 3: Lish ability kills	owledge/s	Skills Nee hare opinio hink critical vrite a react nake presen	ded to ' Ta ns and iu lly abou ion/resp itations i	Take This Co rget Abilitie deas through d t various topic onse essay. n English.	ourse (Pro	lents (in Eng	9pt) tlish.	l and bic		ngineering.	
Textbo Refere Reserv Interme Basic co No. 1 2 3 4	Program Objectives d g g g c g c g	ne (Handout 3: Kno lish ability kills Students will b Students will b Students will b	be able to s be able to the able to reable to	Skills Nee hare opinio hink critical vrite a react nake presen pply effecti	ded to Ta Ta ns and io lly abou ion/resp tations i ve com	Take This Co rget Abilitie deas through d t various topic onse essay. n English. nunication stra	ourse (Pressions s for Stuck iscussions s related to ntegies in p	lents (in Eng	9pt) tlish.	l and bic		ngineering.	
No. ① ② ③ ④	Program Objectives d g g g c g c g	ne (Handout 3: bish ability kills Students will b Students will b Students will b Students will b	be able to s be able to the able to reable to	Skills Nee hare opinio hink critical vrite a react nake presen pply effecti	ded to Ta ns and i lly abou ion/resp itations i ve comm d cite so	Take This Co rget Abilitie deas through d t various topic onse essay. n English. nunication stra	ourse (Press s for Stuck iscussions s related to ttegies in p ately.	lents (in Eng	9pt) tlish.	l and bic		ngineering.	
No. ① ② ③ ④ ⑤ ⑥	Program Objectives d g g c c c c c c c c c c c c c c c c c	ne (Handout 3: bish ability kills Students will b Students will b Students will b Students will b	owledge/s owledge/s oe able to s oe able to t oe able to r oe able to r oe able to r oe able to r	Skills Nee hare opinio hink critical vrite a react nake presen pply effecti	ded to Ta ns and i lly abou ion/resp itations i ve comm d cite so	rget Abilitie deas through d t various topic onse essay. n English. nunication stra urces appropri	ourse (Pressions s for Stuce iscussions s related to itegies in p ately. iteria	lents (in Eng enviro	9pt) tlish.	l and bic		ngineering.	Total
No. ① ② ③ ④ ⑤ ⑥	Program Objectives d g g c g b g a and Ratio	ne (Handout s: Kno lish ability kills Students will b Students will b Students will b Students will b Students will b	owledge/s owledge/s oe able to s oe able to t oe able to r oe able to r oe able to r oe able to r	Skills Nee hare opinio hink critical vrite a react nake presen pply effecti eference an	ded to Ta ns and i lly abou ion/resp itations i ve comm d cite sc E	rget Abilitie deas through d t various topic onse essay. n English. nunication stra urces appropri- tivaluation Cr zes Report	s for Stuc iscussions related to itegies in p ately. iteria s Presen	lents (in Eng enviro	9pt) glish. onmenta ations ar	l and bic	1g.		Total
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 \ast The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Targ Abil	get lity	Evaluation Methods and Important Points (10.5pt)
	1		
	2		
	3		
Exams	4		
	5		
	6		
	1		Several vocabulary, written response, reading/listening comprehension, and/or skill review
	2	V	assessments based on the content of in-class activities and assignments (20%)
	3	5	
Quizzes	(3)		Feedback will be given in the next class session.
		V	
	5		
	6		One reaction/recommended association $(200/)$
	1		One reaction/response essay (30%) Essay includes an outline, first draft, 2 writing conferences, and final draft.
	2	レ	Essay mendees an outline, first draft, 2 withing conferences, and find draft.
Reports	3	V	Feedback will be given during the next class session.
-	4		
	5	V	
	6	V	
	1		One poster presentation/discussion project (30%)
	2	u	Project includes an outline, delivery & participation in discussion, and self- evaluation/reflection.
Presentations	3		evaluation/reflection.
	4	\checkmark	Feedback will be given during the next class session.
	5	$ \nu$	
	6	\checkmark	
	1		
	2		
Works	3		
W OIKS	4		
	5		
	6		
	1	\checkmark	In-class or assignment handouts for preparation and review of discussion activities (20%)
	2	\checkmark	
D (C 1)	3		Feedback will be given during the next class session.
Portfolios	4		
	5	$\boldsymbol{\nu}$	
	6		
	1		
	2		
	3		
Others	4		
	5		
	(6)		
Specific Achieve	\sim	Crite	ria
			al Achievement (10.5pt) Description of Standard Achievement (10.5pt)
			writing and presentations. Comprehensible writing and presentations.
Discuss 100% in f	luent	Engl	ish. Discussions mostly in English.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1 /	Introduction/Reading I Students will be introduced to the syllabus and contents of the course. Students will participate in brainstorming and background building communication activities.	Brainstorming as a pre- reading technique, individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 1	50
2 /	Theme I: Bioethics (1) Students will review and discuss topics related to the reading or videos. Quiz 1	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 2	50
3 /	Theme I: Bioethics (2) Students will review and discuss topics related to the reading or videos. Quiz 2	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 3	50
4	Theme I: Bioethics (3) Students will review and discuss topics related to the reading or videos. Quiz 3	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading I – Part 4	50
5	Theme I: Bioethics (4) Students will review and discuss topics related to the reading or videos. Quiz 4	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities.	50
6	Reaction/Response Students will brainstorm ideas and opinions. Students will research related information to support their ideas and learn how to appropriately reference sources to write a reaction/response essay. <i>Outline Returned</i>	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Draft 1	50
	Reaction/Response Students will brainstorm ideas and opinions. Students will research related information to support their ideas and learn how to appropriately reference sources to write a reaction/response essay. <i>Draft 1 Returned</i>	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Final Draft due Class 9	50
	Reading II Students will participate in brainstorming and background building communication activities.	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 1	50
	Theme: Technology & Society (1) Students will review and discuss topics related to the reading or videos. Quiz 5	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 2	50
10	Theme: Technology & Society (2) Students will review and discuss topics related to the reading or videos. Quiz 6	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 3	50

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Theme: Technology & Society (3) Students will review and discuss topics related to the reading or videos. <i>Reaction/Response Essay Returned</i> Quiz 7	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 4	50
/	Theme: Technology & Society (4) Students will review and discuss topics related to the reading or videos. Quiz 8	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading II – Part 5	50
/	Poster Presentation/Discussion Preparation Students will brainstorm ideas and opinions. Students will research related information to support their ideas and learn how to appropriately reference sources to participate in a poster presentation/discussion.	Individual, pair, and group work; discussion	Review: Complete Presentation/Discussion Outline	50
/	Poster Presentation/Discussion Students will present and discuss ideas, opinions, and research related to the topic in a poster presentation/discussion. Students will complete a written reflection.	Individual, pair, and group work; discussion	Review: Complete written reflection	50
/	Self-Evaluation Students will be given oral and written feedback both overall and individually on their work. Students will also be encouraged to share their feedback about the course. <i>Presentation evaluation returned</i>	Individual, pair, and group work; discussion		

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	Field		Course N	Name		Credits	Cou	irse	Semester	Class S	Style
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 \ast The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation Methods and Important Points (10.5pt)
	1	
	2	
F	3	
Exams	4	
	5	
	6	
	1	
	2 V	
	3	Several vocabulary, written response, reading/listening comprehension, and/or review assessments based on the content of in-class activities and assignments (20%)
Quizzes	4	assessments based on the content of in-class activities and assignments (20%)
	5 V	Feedback will be given in the next class session.
	6	One reaction/response essay (30%)
		Essay includes an outline, first draft, 2 writing conferences, and final draft.
	2 V	Essay includes an outline, first draft, 2 writing conferences, and final draft.
Reports	3 V	Feedback will be given in the next class session.
-	4	
	5 V	
	6 V	
	1	One jigsaw presentation project (30%)
	2 V	Project includes an outline, delivery of presentation, preparation of supplementary materials, and self-evaluation/reflection.
Presentations	3	
Tresentations	(4) V	Feedback will be given in the next class session.
	5 V	
	6 V	
	1	
	2	
XX7 1 .	3	
Works	4	
	5	
	6	
	2 V	In-class or assignment handouts for preparation and review of discussion activities (20%)
	3	
Portfolios	4	Feedback will be given in the next class session.
	5 V	
	6	
	1	
	2	
	3	
Others	4	
	5	
	6	•
Specific Achieve	-	l
		al Achievement (10.5pt) Description of Standard Achievement (10.5pt)
		c writing and presentations. Comprehensible writing and presentations.
Discuss 100% in f	luent Engl	lish. Discussions mostly in English.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
/	Introduction Students will be introduced to the syllabus and contents of the course. Students will participate in brainstorming and background building communication activities.	Brainstorming as a pre- reading technique, individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 1 Quiz 1	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 2 Quiz 2	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 3 Quiz 3	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
5 /	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 4 Quiz 4	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review, discuss, and brainstorm ideas and opinions. Students will research related information to support their ideas. Theme: Cultural perspectives on knowledge 5 Quiz 5	Individual, pair, and group work; discussion	Review: Complete outline and Reaction/Response Essay Draft 1	50
/	Students will brainstorm ideas and opinions. Students will research and learn how to appropriately reference sources to write a reaction/response essay.	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Final Draft due Class 9	50
/	Students will participate in writing conferences. Students will create teams, choose topics, and participate in brainstorming and background building communication activities.	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
/	Students will research information related to their topic and learn how to appropriately reference sources for a presentation. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Start presentation outline	50
	Students will continue to research and organize presentation contents. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Complete presentation outline	50

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Students will prepare presentation slides and supplementary materials for their presentation. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Complete presentation slides and supplemental materials	50
	Reaction/Response Essay Returned		Reading – Various articles, book/web resources	
/	Jigsaw Presentation/Discussion Theme: Math, Natural science, Human science Students will deliver presentations and lead discussions/activities based on supplemental	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles,	50
	materials connected to their topic of research. Quiz 6		book/web resources	
	Jigsaw Presentation/Discussion Theme: Arts, History, Ethics	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities.	50
,	Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 7		Reading – Various articles, book/web resources	
/	Jigsaw Presentation/Discussion Theme: Religious and Indigenous knowledge Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 8	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Review: Complete written reflection	50
/	Self-Evaluation Students will be given oral and written feedback both overall and individually on their work. Students will also be encouraged to share their feedback about the course. <i>Presentation/Discussion Project Returned</i>	Individual, pair, and group work; discussion		

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 \ast The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation Methods and Important Points (10.5pt)
	1	
	2	
F	3	
Exams	4	
	5	
	6	
	1	
	2 2	
	3	Several vocabulary, written response, reading/listening comprehension, and/or review assessments based on the content of in-class activities and assignments (20%)
Quizzes	4	assessments based on the content of in-class activities and assignments (20%)
	5 V	Feedback will be given in the next class session.
	6	One reaction/response essay (30%)
		Essay includes an outline, first draft, 2 writing conferences, and final draft.
	2 V	Essay includes an outline, first draft, 2 writing conferences, and final draft.
Reports	3 V	Feedback will be given in the next class session.
-	4	
	5 V	
	6 V	
	1	One jigsaw presentation project (30%)
	2 V	Project includes an outline, delivery of presentation, preparation of supplementary materials, and self-evaluation/reflection.
Presentations	3	
Tresentations	(4) V	Feedback will be given in the next class session.
	5 V	
	6 V	
	1	
	2	
XX7 1 .	3	
Works	4	
	5	
	6	
	2 V	In-class or assignment handouts for preparation and review of discussion activities (20%)
	3	
Portfolios	4	Feedback will be given in the next class session.
	5 V	
	6	
	1	
	2	
	3	
Others	4	
	5	
	6	•
Specific Achieve	-	l
		al Achievement (10.5pt) Description of Standard Achievement (10.5pt)
		c writing and presentations. Comprehensible writing and presentations.
Discuss 100% in f	luent Engl	lish. Discussions mostly in English.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
/	Introduction Students will be introduced to the syllabus and contents of the course. Students will participate in brainstorming and background building communication activities.	Brainstorming as a pre- reading technique, individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 1 Quiz 1	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 2 Quiz 2	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 3 Quiz 3	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
5 /	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 4 Quiz 4	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
	Students will review, discuss, and brainstorm ideas and opinions. Students will research related information to support their ideas. Theme: Cultural perspectives on knowledge 5 Quiz 5	Individual, pair, and group work; discussion	Review: Complete outline and Reaction/Response Essay Draft 1	50
/	Students will brainstorm ideas and opinions. Students will research and learn how to appropriately reference sources to write a reaction/response essay.	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Final Draft due Class 9	50
/	Students will participate in writing conferences. Students will create teams, choose topics, and participate in brainstorming and background building communication activities.	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
/	Students will research information related to their topic and learn how to appropriately reference sources for a presentation. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Start presentation outline	50
	Students will continue to research and organize presentation contents. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Complete presentation outline	50

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Students will prepare presentation slides and supplementary materials for their presentation. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Complete presentation slides and supplemental materials	50
	Reaction/Response Essay Returned		Reading – Various articles, book/web resources	
/	Jigsaw Presentation/Discussion Theme: Math, Natural science, Human science Students will deliver presentations and lead discussions/activities based on supplemental	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles,	50
	materials connected to their topic of research. Quiz 6		book/web resources	
	Jigsaw Presentation/Discussion Theme: Arts, History, Ethics	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities.	50
,	Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 7		Reading – Various articles, book/web resources	
/	Jigsaw Presentation/Discussion Theme: Religious and Indigenous knowledge Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 8	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Review: Complete written reflection	50
/	Self-Evaluation Students will be given oral and written feedback both overall and individually on their work. Students will also be encouraged to share their feedback about the course. <i>Presentation/Discussion Project Returned</i>	Individual, pair, and group work; discussion		

											ny experience.
	Field		Course N	Course Name			Co	urse	emester	Class S	Style
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Require Textboo Referen Reserve Basic co Basic co Basic co Gasic co Criteria	ed Materia boks: None ince books red books: diate Engl omputer sk diate Engl omputer sk diate S d S c S c S c S b S	Is (textbooks, r e (Handouts) :: Van de Lager Know ish ability cills Students will be at Students will be	eference books, naat, Richard. (edge/Skills Nee ble to share opinio ble to think critical ble to make presen ble to apply effecti ble to reference an hod Exams 0 0	, reserv 2015). eded to eded to Ta ons and id lly about ion/resp itations i ive comm d cite so I Quizz 20 5	red books) (10 Theory of Ki Take This Co arget Abilities deas through di t various topics onse essay. n English. nunication stra purces appropris Evaluation Cr zes Reports 30 10	0.5pt) nowledge purse (Pro- s for Stuce iscussions related to tegies in p ately. iteria s Present 30 5	e for t erequi dents (in Eng areas (presenta ations	the IB Dip isites) (10. (9pt) glish. of knowledg ations and v Works 0 0	loma, 2nd F 5pt) ge. vriting.	Ed. Cambrid	lge.
Require Textboo Referen Reserve Basic coo No. 1 2 3 4 6 5 6 6	ed Materia boks: None ance books red books: diate Englomputer sk diate Englomputer sk d s d s d s c s c s c s c s d s b s a and Ratio Total Eva Ability to thi Collaboratio	Is (textbooks, r e (Handouts) :: Van de Lager Know ish ability cills Students will be at Students will be	eference books, naat, Richard. (edge/Skills Nee ble to share opinio ble to think critical ble to write a react ble to apply effection ble to reference an ble to apply effection ble to reference an ble to reference an ble to apply effection ble to reference an ble to apply effection ble to reference an ble to apply effection ble to apply effect	, reserv (2015). eded to eded to Ta ns and id lly about tion/resp ntations i ive comm d cite so F Quizz 20 5 5 5	red books) (10 Theory of Ka Take This Co Take This Co arget Abilities deas through di t various topics onse essay. n English. nunication stra purces appropria Evaluation Cr zes Reports 30 10 10	0.5pt) nowledge purse (Pro- s for Stud iscussions related to tegies in p ately. iteria s Present 30 5 5	e for t erequi dents (in Eng areas presenta	the IB Dip isites) (10. (9pt) glish. of knowledg ations and v Works 0 0 0 0	loma, 2nd H 5pt) ge. /riting. Portfolios 20 5 5 5	Ed. Cambrid	lge.

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation Methods and Important Points (10.5pt)
	1	
	2	
	3	
Exams	4	
	5	
	6	
	1	
	2 V	
	3	Several vocabulary, written response, reading/listening comprehension, and/or review assessments based on the content of in-class activities and assignments (20%)
Quizzes	4	assessments based on the content of m-class activities and assignments (20%)
	5 V	Feedback will be given in the next class session.
	6	One reaction (response assour $(200/)$
		One reaction/response essay (30%) Essay includes an outline, first draft, 2 writing conferences, and final draft.
	2 V	Essay mendess an outline, mist draft, 2 writing conferences, and find draft.
Reports	3 V	Feedback will be given in the next class session.
	4	
	5 V	
	6 V	
	1	One jigsaw presentation project (30%)
	2 V	Project includes an outline, delivery of presentation, preparation of supplementary materials, and self-evaluation/reflection.
Presentations	3	and sen-evaluation/reflection.
Tresentations	(4) V	Feedback will be given in the next class session.
	5 V	reedback will be given in the next class session.
	6 V	
	1	
	2	
XX7 1	3	
Works	4	
	5	
	6	
	1 V	
	2 V	In-class or assignment handouts for preparation and review of discussion activities (20%)
	3	
Portfolios	4	Feedback will be given in the next class session.
	5 V	
	6	
	1	
	2	
	3	
Others	4	
	5	
Specific Achieve	6 ment Crite	aria
		al Achievement (10.5pt) Description of Standard Achievement (10.5pt)
		writing and presentations. Comprehensible writing and presentations.
Discuss 100% in f		

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes	
1 /	Introduction Students will be introduced to the syllabus and contents of the course. Students will participate in brainstorming and background building communication activities.	Brainstorming as a pre- reading technique, individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50	
2 /	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 1 Quiz 1	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50	
3 /	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 2 Quiz 2	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources		
	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 3 Quiz 3	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50	
5	Students will review and discuss topics related to the theme. Theme: Cultural perspectives on knowledge 4 Quiz 4	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50	
6 /	Students will review, discuss, and brainstorm ideas and opinions. Students will research related information to support their ideas. Theme: Cultural perspectives on knowledge 5 Quiz 5	Individual, pair, and group work; discussion	Review: Complete outline and Reaction/Response Essay Draft 1	50	
/	Students will brainstorm ideas and opinions. Students will research and learn how to appropriately reference sources to write a reaction/response essay.	Individual, pair, and group work; discussion	Review: Complete Reaction/Response Essay Final Draft due Class 9	50	
	Students will participate in writing conferences. Students will create teams, choose topics, and participate in brainstorming and background building communication activities.	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50	
-	Students will research information related to their topic and learn how to appropriately reference sources for a presentation. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Start presentation outline	50	
10	Students will continue to research and organize presentation contents. Theme: Areas of Knowledge	Individual, pair, and group work; discussion	Review: Complete presentation outline	50	

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Students will prepare presentation slides and supplementary materials for their presentation. Theme: Areas of Knowledge <i>Reaction/Response Essay Returned</i>	Individual, pair, and group work; discussion	Review: Complete presentation slides and supplemental materials Reading – Various articles, book/web resources	50
/	Jigsaw Presentation/Discussion Theme: Math, Natural science, Human science Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 6	work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
/	Jigsaw Presentation/Discussion Theme: Arts, History, Ethics Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 7	Individual, pair, and group work; discussion	Review: Complete the worksheet based on the class activities. Reading – Various articles, book/web resources	50
/	Jigsaw Presentation/Discussion Theme: Religious and Indigenous knowledge Students will deliver presentations and lead discussions/activities based on supplemental materials connected to their topic of research. Quiz 8	work; discussion	Review: Complete the worksheet based on the class activities. Review: Complete written reflection	50
/	Self-Evaluation Students will be given oral and written feedback both overall and individually on their work. Students will also be encouraged to share their feedback about the course. <i>Presentation/Discussion Project Returned</i>	Individual, pair, and group work; discussion		

	Instructor with "*"means an instructor with company experience											
	Field		Course N	Name		C	Credits	Co	urse	Semester	Class	
Dept. S											Experimen	t/Practice
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Required Target Grade		Instructor			Offi	ice]	E-ma	il Addres	s	Office	Hours
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				(Course (Objectiv						
		ds (10.5pt)		0	1.	1 1				es (10.5pt)	·	
1 Ex	xpertise										eye view of e this end, the	
2 Th	neoretical thi	nking/Decisior									tical thinkin	
3 Pr	oblem-solvi	ng process									ication skills	
4 In	formation ga	thering and ana	alysis I	present	ation sl	cills thro	ugh pra	actica	ıl training	.		
5 Pr	resentation											
in speciali knowledge acquire ne implement The flow of following cause anal solution pl Students n progress of Required Textbook Referenc Reserved	Course Description and Expectations for Students (10.5pt) Under the advice of faculty members, students decide on a "theme" and engage in project activities, applying their knowledge in specialized fields such as mechanical engineering, information engineering, and business. In addition to their previous knowledge and experience, and how to collect and share information necessary for the progress of the project, students will acquire new knowledge through research through practical training. Then, activities based on logical thinking will be implemented. The flow of the project will differ slightly depending on the main theme, but basically, the project will proceed in the following manner." Discover the problem → Understand the current situation → Determine the problem based on problem cause analysis and structural analysis → Set preconditions and achievement conditions for the solution → Determine the solution plan." Students must submit weekly reports. In addition, they must submit a final report at the end of the semester describing the progress of the project. Required Materials (textbooks, reference books, reserved books) (10.5pt) Textbooks: Reference books: Reserved books: Knowledge/Skills Needed to Take This Course (Prerequisites) (10.5pt) Knowledge and experience learned and acquired so far.											
	rogram jectives			Та	arget Al	oilities fo	or Stude	ents (9pt)			
1	5	nts will be able to	analyze issu						- ·			
2		ts will be able to	-					51				
3		ts will be able to						ed kno	wledge.			
4		ts will be able to				-	-		-	and manner.		
5		ts will be able to	-	-		-	-	-				
6			un utt				, s. ardi		acinty.			
				т	Evaluati	on Crite	ia					
	- Eval	luation Method					lu					
Criteria ar			Exams	Quiz	zes	Reports	Presentat	tions	Works	Portfolios	Others	Total
	Total Evaluation	n Ratio	0	0		20	40		0	20	0	100
0 41						30	40		0	30	0	100
Ab	ility to capture k ility to think, rea		0	0		10	5		0	10	0	25
Crite			0	0		10	5		0	10	0	25
200	Ilaboration and		0	0		0	10		0	0	0	10
ength			0	0		10	20		0	0	0	30
Image: Attitude and motivation for learning 0 0 0 0 0 10 0 1 * The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management. 0 0 0 10 0 1								10				

Evaluation Method	Targ Abil	get lity	Evaluatio	n Methods and Important Points (10.5pt)				
	1							
	2							
Exams	3							
Lixuitis	4							
	5							
	6							
	1							
	2							
Quizzes	3							
	4							
	5 6							
	1	1	Report will include individual w	ork report (the project progress and outcomes).				
	2		The format of the report will be a					
	3		Students must submit the final re					
Reports	4	1						
	5	1						
	6							
	1	There will be a presentation at the end of the semester. Students will give oral progress of the						
	2	✓ projects.						
Descentations	3	1		ill be announced by instructors, such as slides, poster, and/or				
Presentations			y other styles.					
	5	1						
	6							
	1							
	2							
Works	3							
() OIRS	4							
	5							
	6							
	1		The format of the portfolio will b	ports as the evidence of their projects.				
	2	-	The format of the portiono will t	announced by the instructors.				
Portfolios	3	✓ ✓						
	 4 5 	<i>v</i>						
	6	v						
	1							
	2							
	3							
Others	(4)							
	5							
	6							
Specific Achieve								
			al Achievement (10.5pt)	Description of Standard Achievement (10.5pt) Design and plan the research project with the support of				
Design and plan d	10 1050		i project by onesen.	Instructor.				
			opment activities smoothly					
according to the research project plan.				Conduct research and development activities in accordance				
Dragont correct		that	are recognized as an i	with the research project plan.				
			are recognized as academically fective, and practical.	Present concrete results along with technical innovations.				
commonly sign		, 011	, una praetican					

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1-2	Project activity / review	Activity / Explanation / Report	Confirm the schedule and objectives. Making weekly report	60
3-4	Project activity / review	Activity / Explanation / Report	Making weekly report	60
5-6 /	Project activity / review	Activity / Explanation / Report	Making weekly report	60
7-8	Project activity / review	Activity / Explanation / Report	Making weekly report	60
9-10 /	Project activity / review	Activity / Explanation / Report	Making weekly report	60
11-12	Project activity / review	Activity / Explanation / Report	Making weekly report	60
13-14	Project activity / review	Activity / Explanation / Report	Making weekly report	60
15-16	Project activity / review	Activity / Explanation / Report	Making weekly report	60
17-18	Project activity / review	Activity / Explanation / Report	Making weekly report	60
19-20 /	Project activity / review	Activity / Explanation / Report	Making weekly report	60

Class No. Date	Class Content (10pt)	Class Content (10pt) Method (10pt)					
21-22	Project activity / review	Activity / Explanation / Report	Making weekly report	60			
23-24	Project activity / review	Activity / Explanation / Report	Making weekly report	60			
25-26	Project activity / review	Activity / Explanation / Report	Making weekly report	60			
27-28	Project activity / review	Activity / Explanation / Report	Making weekly report Prepare for the presentation and the report	60			
29-30	Presentation	Presentation	Prepare for the presentation and the report	60			

	Instructor with "*"means an instructor with company experience												
	Field			Course 1	Name		(Credits	Co	urse	Semester	Class	
Dept. S												Experimen	t/Practice
Special			Eng	gineering l	Design	V B		2	520)500	Second	Cla	
Require Target Grade			Instructor			Of	fice		E-ma	ail Addre	SS	Office	Hours
5			ISHIMA, Sat SHIMA, Yosl			Kanaz	zawa C					Wedno 16:50-	
		KUS	SHIMA, YOS	niniro								16:50-	17:30
					(Course	Objectiv	ves					
			(10.5pt)								res (10.5pt)		<u> </u>
1	Expertise	e										eye view of this end, the	
2	Theoreti	cal thinl	king/Decisior									tical thinkin	
3	Problem	-solving	process									ication skill	
4	Informat	ion gath	ering and an	alysis	present	tation s	skills thr	ough pr	ractica	al trainin	g.		
5	Presenta	tion											
in specia knowled acquire i impleme The flow followin cause an solution Students progress Require Textbo Referen Reserv	Course Description and Expectations for Students (10.5pt) Under the advice of faculty members, students decide on a "theme" and engage in project activities, applying their knowledge in specialized fields such as mechanical engineering, information engineering, and business. In addition to their previous knowledge and experience, and how to collect and share information necessary for the progress of the project, students will acquire new knowledge through research through practical training. Then, activities based on logical thinking will be implemented. The flow of the project will differ slightly depending on the main theme, but basically, the project will proceed in the following manner." Discover the problem → Understand the current situation → Determine the problem based on problem cause analysis and structural analysis → Set preconditions and achievement conditions for the solution → Determine the solution plan." Students must submit weekly reports. In addition, they must submit a final report at the end of the semester describing the progress of the project. Required Materials (textbooks, reference books, reserved books) (10.5pt) Textbooks: Reference books: Reserved books: Knowledge/Skills Needed to Take This Course (Prerequisites) (10.5pt) Knowledge and experience learned and acquired so far.												
	Program												
No.	Objectives					-	Abilities f						
1			will be able to							blems.			
2			will be able to		-								
3			will be able to				-	-		-			
4	d	Students	will be able to	explain thei	r analys	is and i	deas logic	ally, in a	in easy	-to-under	stand manner.		
5	а	Students	will be able to	show an att	itude of	trying t	o objectiv	ely evalı	uate or	ne's ability	·.		
6													
]	Evalua	tion Crite	ria					
Criteria	and Ratio		ation Method	Exams	Quiz	zes	Reports	Present	tations	Works	Portfolio	s Others	Total
	Total Ev	aluation F	latio	0	0		40	40	0	0	20	0	100
Co	Ability to c	apture kno	wledge	0	0		10	5	i	0	5	0	20
mpret			n and create	0	0)	20	5	i	0	5	0	30
Crit	Collaborati			0	0		0	10		0	0	0	10
e Strer a			Communication	0	0		10	20		0	0	0	30
lgth	Attitude and	d motivatio	on for learning	0	0		0	0		0	10	0	10
	Image: Provide and motivation for learning 0 0 0 0 10 0 10 Image: Attitude and motivation for learning 0 0 0 0 0 10 0 10												

Evaluation Method	Targ Abil	get lity	Evaluatio	n Methods and Important Points (10.5pt)				
	1							
	2							
Exams	3							
Lixuitis	4							
	5							
	6							
	1							
	2							
Quizzes	3							
	4							
	5 6							
	1	1	Report will include individual w	ork report (the project progress and outcomes).				
	2		The format of the report will be a					
	3		Students must submit the final re					
Reports	4	1						
	5	1						
	6							
	1	There will be a presentation at the end of the semester. Students will give oral progress of the						
	2	✓ projects.						
Descentations	3	1		ill be announced by instructors, such as slides, poster, and/or				
Presentations			y other styles.					
	5	1						
	6							
	1							
	2							
Works	3							
() OIRS	4							
	5							
	6							
	1		The format of the portfolio will b	ports as the evidence of their projects.				
	2	-	The format of the portiono will t	announced by the instructors.				
Portfolios	3	✓ ✓						
	 ④ ⑤ 	<i>v</i>						
	6	v						
	1							
	2							
	3							
Others	(4)							
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Specific Achieve								
			al Achievement (10.5pt)	Description of Standard Achievement (10.5pt) Design and plan the research project with the support of				
Design and plan d	10 1050		i project by onesen.	Instructor.				
			opment activities smoothly					
according to the research project plan.				Conduct research and development activities in accordance				
Dragont correct		that	are recognized as an i	with the research project plan.				
			are recognized as academically fective, and practical.	Present concrete results along with technical innovations.				
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Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1-2	Project activity / review	Activity / Explanation / Report	Confirm the schedule and objectives. Making weekly report	60
3-4	Project activity / review	Activity / Explanation / Report	Making weekly report	60
5-6 /	Project activity / review	Activity / Explanation / Report	Making weekly report	60
7-8	Project activity / review	Activity / Explanation / Report	Making weekly report	60
9-10 /	Project activity / review	Activity / Explanation / Report	Making weekly report	60
11-12	Project activity / review	Activity / Explanation / Report	Making weekly report	60
13-14	Project activity / review	Activity / Explanation / Report	Making weekly report	60
15-16	Project activity / review	Activity / Explanation / Report	Making weekly report	60
17-18	Project activity / review	Activity / Explanation / Report	Making weekly report	60
19-20 /	Project activity / review	Activity / Explanation / Report	Making weekly report	60

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
21-22	Project activity / review	Activity / Explanation / Report	Making weekly report	60
23-24	Project activity / review	Activity / Explanation / Report	Making weekly report	60
25-26	Project activity / review	Activity / Explanation / Report	Making weekly report	60
27-28	Project activity / review	Activity / Explanation / Report	Making weekly report Prepare for the presentation and the report	60
29-30	Presentation	Presentation	Prepare for the presentation and the report	60

								In	structor with	"*"means an in	structor with compa	ny experience
	Field		Course N	Name		C	Credits	Co	urse	Semester	Class	
Dept. S Speciali Elective	ized		Internsh	Internship II			1	520	800	Intensive	Experimen Cla	
Target Grade		Instructor			Off	ice	E-mail Address			Office Hours		
5		keshi		Kanaza 31:1						Fri. 15:30 – 17:30		
					Course	Objectiv	es					
	Keyv	vords (10.5pt)						-	-	res (10.5pt)		
1Career design2Engineering skills and knowledge3Skills for research4Human skills5Engineering skills and knowledge						versities in ar that require 1 will improv eering, how t an engineer le	nd outside nore e their to be an eader who					
		on a project under 5 days of actual v		ion of	their ad	lvisors, b	ased of				ıdy.	
- Work i Required Textboo Referen Reservo	ndependen d Materials oks: nce books: ed books:	ons of advisors an tly and in groups. (textbooks, reference <u>Knowle</u> onal skills required	ence books edge/Skills	, reser	ed to Ta	oks) (10.5	ipt) Course					
No.	Program Objectives				Targe	t Abilitie	s for St	uden	ts			
1	a, h St	udents will be able	e to comple	ete tas	ks by ap	oplying v	vhat the	ey ha	ve practi	ced.		
2	e, i St	udents will be able	e to unders	tand th	heir stre	ngths an	d weak	inesse	es better.			
3	b, i St	udents will be able	e to have a	deepe	er under	standing	of thei	r cho	sen indu	stry.		
4	b, i St	udents will be able	e to develop	p a be	tter idea	ı of what	they w	vould	like to p	oursue in the	e future.	
5	b, i St	udents will be able	e to reflect	on wh	nat they	did and	set goa	ls for	the futu	re.		
6	c, d St	udents will be able	e to develo					ed to	work pro	oductively v	vith others.	
					Evaluat	ion Crite	ria					
Criteria	and Ratio	Evaluation Method	Exams	Qui	zzes	Reports	Present	ations	Works	Portfolic	os Others	Total
	Total Evalu	ation Ratio	0	(0	40	40)	0	0	20	100
Com	Ability to capt	are knowledge	0	(0	10	0		0	0	4	14
prehen Cri	Ability to think	, reason and create	0		0	15	10		0	0	4	29
a e s		and leadership	0		0	0	0		0	0	4	4
rength		pression / Communication	0		0	0	30		0	0	4	34
		otivation for learning n shown by Compreher	0 nsive Strength		0 a is an ann	15 rovimate g	0 uideline f		0	0	4	19

Evaluation Method	Target Ability	Evaluation Methods and Important Points (10.5pt)
	1	
	2	
F	3	
Exams	4	
	5	
	6	
	1	
	2	
Quizzos	3	
Quizzes	4	
	5	
	6	
		• Write a report on the contents and results of the work experience. Rather than simply
	2	describing the process and results, reflect on the overall content of the experience and describe
Reports	3 2	in detail the knowledge and skills that were utilized in each process.
Reports	(4)	• Based on the results of reflecting on work experience, plan how to use it in future activities and specify action goals to be implemented.
	5	and specify action goals to be implemented.
_	6	
		This evaluation will be made by the students' presentation at internship presentation session.
	2 2	
Presentations	3 2	
	(4) V	
	5 V	
	6 V	
	1	
	2	
Works	3	
	4	
	5	
	6 ①	
	2	
Portfolios	4	
	(4)	
	6	
		Evaluation will be made by the host company as to whether the student can work/study in the
	_	field of
	3	expertise in accordance with the engineering ethics.
Others	(4) V	
	5 V	
	<u> </u> 6 レ	
Specific Achieve	ment Crite	
		f Ideal Achievement Description of Standard Achievement
nurnose of particir	nation in te	of the internship and set the erms of both improving basic Understand the significance of internships and set a purpose for participating. To be able to research the field.
skills for working	adults and	to confirm the level of one's own To be able to carry out the work/study which the host
able to decide whi	ch a host	they would like to participate in gives without any problems.
and research the re	elevant inc	lustries or study fields. arch the relevant field based on
their own career d		

Class No. Date	Class Content	Method	Assignments (Preview and Review)	Time (Minutes)
1 /	Understand the purpose and the significant aspects of internship education. Prepare the necessary documents and materials for the internship program.	Lecture		
2	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
3	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed	Practical work/study experience Instructed by a designated industry.		
4	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
5	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
6	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
7	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
8	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
9	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience Instructed by a designated industry.		
10	Working on the internship program . -Follow the policy of the field. - Submit the assigned work results as instructed.	Practical work/study experience		

Class No. Date	Class Content	Method	Assignments (Preview and Review)	Time (Minutes)
11	Working on the internship program . -Follow the policy of the field.	Practical work/study experience		
/	- Submit the assigned work results as instructed.	Instructed by a designated industry.		
12	Working on the internship program . -Follow the policy of the field.	Practical work/study experience		
/	- Submit the assigned work results as instructed.	Instructed by a designated industry.		
13	Preparation for presentation	Making powerpoint slides		
/				
14	Preparation for presentation	Making powerpoint slides		
/				
15	Final presentation - Present the achievement of the internship	Preparation		
/	program			

				202	4 Syllab	us	I	nstructor wit	th "*" means an instr	uctor with compa	ny experience
	Field		Course N	Name		Credi	te Co	ourse ode	Semester	Class S	
Dept. S Special Elective	lized	Eng	gineering N	Iathema	ttics	2	522	2000	First	Lect Tot	
Target Grade		Instructor			Office		E-mail Address			Office 1	Hours
5		KUSHIMA, Yoshihiro			31.117					16:50 ~	17:30
Course Objectives											
	Keyw	ords (10.5pt)				L	earning	Objectiv	ves (10.5pt)		
2 3 4	Complex numbers Laplace transformsStudents will: (1) Review complex nu (2) Learn Laplace trans (3) Learn inverse Lapla (4) Learn transfer functions Block diagramsBlock diagrams(5) Learn block diagram					transfori Laplace t function	ms for s transfor	olving l ms for s	inear differen olving linear		
•	Dioek diagi		ourse Descri	. ,		0	Studen	ts (10.5p	ot)		
ninuite This is a L. Comp 2. Lapla 3. Invers 4. Trans 5. Block Students Stability Require Textbo Referen Reserv	self-study ti a basic cours olex numbers ice transform se Laplace tr sfer functions c diagrams s are expected of a control ed Materials ooks: Schaun nce books: ved books: nt mathemat	ns ansforms s ed to understand t	inute classe heering. Wo he meaning ence books vances Mat <u>c/Skills Nee</u> kills.	es. e will co g of the , reserve thematic	over the fo analysis n ed books) cs for Engi	llowing hethod for (10.5pt) neers an	topics: or contr d Scien	ol syster tist (Mc	ns and expect Graw Hill)		
No.	Program			Та	rget Abiliti	es for St	udents	(9nt)			
110.	Objectives h i Bo	able to Calculate con	mplay numb		-500 Homu		adents	(PD)			
2		able to use basic Lap	-								
3		able to solve linear of			with inverse	Laplace t	ransforn	18.			
4		able to use transfer f									
5	h, i Bea	able to understand b	lock diagram	18.							
6											
			1	E	valuation C	Criteria					1
Criteria	a and Ratio	valuation Method	Exams	Quizz	es Repo	orts Pres	sentations	Works	s Portfolios	Others	Total
	Total Evalua	tion Ratio	35	20	35		0	0	0	10	100
Con	Ability to captur	re knowledge	15	10	10		0	0	0	0	35
iprehei Cr	Ability to think,	reason and create	20	10	10		0	0	0	0	40
a co	Collaboration a		0	0	0		0	0	0	0	0
ě.	· · / F										
rengti		ression / Communication	0	0	0		0	0	0	5	5 20

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Tar Abi	get lity	Evaluation Met	hods and Important Points (10.5pt)
	1		A semester final examination is given,	as specified in the course schedule, to evaluate your
	2	\checkmark	degree of achievement comprehensive	y.
Exams	3	\checkmark		
Exams	4	\checkmark		
	5	\checkmark		
	6			
	1	\checkmark	Several 50-minute quizzes are given to	improve comprehension.
	2	\checkmark		
Quizzes	3	\checkmark		
C	4	\checkmark		
	5	\checkmark		
	6			
	1		Students will prepare and submit repor and issues.	ts to demonstrate their understanding of assigned topics
	2	· ·		
Reports	3	✓ 		
	4	✓ ✓		
	5	v		
	6 1			
	2			
	3			
Presentations	4			
	5			
	6			
	1			
	2			
XX7 1	3			
Works	4			
	5			
	6			
	1			
	2			
Portfolios	3			
	4			
	5			
	6	,	Students will be evolveded based or 1-	pring afforts in lastures and practices and report
	1		students will be evaluated based on leasubmission.	arning efforts in lectures and practices and report
	2	✓ ✓	540111551011.	
Others	3 4	▼ ✓		
	(4)	v 		
	6	•		
Specific Achieve	\sim	Crite	eria	
			al Achievement (10.5pt)	Description of Standard Achievement (10.5pt)
				ble to represent physical phenomena presented as
phenomena.	uynan	me s		rential equations as dynamic systems for analysis. Arstand the matters that characterize physical
*	is ne	cess		omena and be able to analyze dynamic systems
				oppriately.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1 /	Course introduction Overview of System Control Complex numbers Trigonometric Functions	Guidance Lecture and Q&A	Understand the objectives of the course	200
2 /	Laplace Transforms (1)	Lecture and Q&A	Review lecture content and assignments	200
3 /	Laplace Transforms (2)	Lecture and Q&A	Review lecture content and assignments	200
4	Inverse Laplace Transforms	Lecture and Q&A	Review lecture content and assignments	200
5	State-Space Representation	Lecture and Q&A	Review lecture content and assignments	200
6 /	Review for Quiz 1	Review	Prepare for quiz	200
7 /	Quiz 1	Quiz	Review	200
8	Quiz 1 Return Transfer Function (1)	Lecture and Q&A	Review lecture content and assignments	200
9	Transfer Function (2)	Lecture and Q&A	Review lecture content and assignments	200
10	Transfer Function (3)	Lecture and Q&A	Review lecture content and assignments	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11	Block Diagram (1)	Lecture and Q&A	Review lecture content and assignments	200
12	Block Diagram (2)	Lecture and Q&A	Review lecture content and assignments	200
13	Review for Quiz 2	Review	Prepare for quiz	200
14	Quiz 2	Quiz	Review	200
15 /	Quiz 2 Return Review for Final Exam	Review	Prepare for the final exam	200
16 /	Final Exam	Exam	Review all materials	
17 /	Returning Final Exam Results	Review Self-evaluation		

							In				ry experience
	Field		Course N	lame		Credits	Co	irse	semester	Class S	Style
Dept. S Speciali Elective	ized		Applied Ph	nysics I		2	522	300	First	Lectu Tota	
Target Grade		Instructor			Office		E-mail Address			Office Hours	
5	HAN, Justin			К	Kanazawa C 31.119					Wednesday	4:50-5:30
Course Obj											
	Keywords	(10.5pt)			5		rning	Objective	es (10.5pt)		
2 3 4	Rigid Body Dyn FBD and KD Kinematics Kinetics		SI	ubjects.	forms the for Students in gid bodies a	this cour	rse wi	ll study a	about the va	rious forces	acting on
5	Equations of M		·		d Expectatio	6 6	1 .	(10.5.1)			
ninute s Fhe prog 1.	rrse will provide elf-study times gression of this of Planar Kinemat - Absolute mo - Relative mo Planar Kinetics	for 15 50-mir course is as fo ics otion	nute classes.		e study times	s are wor	th one	e credit, a	and students	need to hav	e 30 50-
Require Textboo Referen Reservo	 Inertia Equations of d Materials (tex oks: Engineering nce books: ed books: erstanding of: basic physic 	tbooks, refere g Mechanics: Knowledge	Dynamics, /Skills Need	SI Edit		Edition				292088723	
Require Textboo Referen Reservo	 Inertia Equations of d Materials (tex oks: Engineering nce books: ed books: erstanding of: basic physic static forces 	tbooks, refere g Mechanics: Knowledge cs concepts	Dynamics, /Skills Need	SI Edit	ion (English Sake This Co	urse (Pre	requis	sites) (10		292088723	
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Require Textboo Referen Reserve	- Inertia - Equations of d Materials (tex oks: Engineering nce books: ed books: ed books: erstanding of: - basic physic - static forces Program Objectives g, h, i Be able g, h, i Be able	tbooks, refere g Mechanics: Knowledge cs concepts s acting on rig to describe and to explain the al to break down of to explain the e to explain the co to create equation	Dynamics, /Skills Need gid bodies create equation boolute and reallynamic system ffect of forcess oncept of iner ons of motion	SI Edit ded to T Tar ons of mo elative mo ems into f s on the r rtia and it n for syste Ev	ion (English Cake This Co Sake	for Stud cles bodies. kinetic dia bodies. n motion. odies in m teria	ents (agrams otion.	sites) (10 9pt)	.5pt)		Total 100
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Require Textboo Referen Reserve An unde	- Inertia - Equations of d Materials (tex oks: Engineering nce books: ed books: erstanding of: - basic physic - static forces Program Objectives g, h, i Be able g, h, i Be able	tbooks, refere g Mechanics: Knowledge cs concepts s acting on rig to describe and to explain the a to break down of to explain the e to create equation ation Method Ratio owledge on and create	Dynamics, /Skills Need gid bodies create equation boolute and re- lynamic syste ffect of forces oncept of iner ons of motion Exams 40 20	SI Edit ded to T ded to T Tar ons of mo elative mo ems into f s on the r rtia and it n for syste Quizze 20 10	ion (English Cake This Co Sake	for Stud cles bodies. hodies in m teria Present 0 0	ents (agrams otion. ations	sites) (10 9pt)	.5pt)	Others 0 0 0	100 50
Required Reference Reserver An under No. 1 2 3 4 5 6 Criteria Criteria	- Inertia - Equations of d Materials (tex oks: Engineering nce books: ed books: erstanding of: - basic physic - static forces program Objectives g, h, i Be able g, h, i Be able Ability to capture known Ability to think, reaso	tbooks, refere g Mechanics: Knowledge cs concepts s acting on rig to describe and to explain the al to break down of to explain the er to explain the c to create equation ation Method Ratio owledge on and create adership	Dynamics, /Skills Need gid bodies gid bodies create equation boolute and re- lynamic system ffect of forces oncept of iner ons of motion Exams 40 20 10	SI Edit ded to T ded to T Tar ons of mo elative me ems into f s on the r rtia and if n for syste Quizze 20 10 5	ion (English Cake This Co Sake	for Stud cles bodies. kinetic dia bodies. bodies. h motion. bodies in m teria present 0 0 0	ents (¹ agrams otion.	sites) (10 9pt)	.5pt) .5pt)	Others 0 0 0 0 0	100 50 25

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation	Methods and Important Points (10.5pt)
		There will be a final exam at the e	end of the semester that will test you on the important
	2 🗸	concepts introduced throughout th	ne semester.
Exams	3 🗸	_	
Exams	④ ✓	_	
	5 🗸		
	6 🗸		
	1 1		zes that will test you on the concepts introduced in the weeks
	2 🗸		you will be allowed to prepare one sheet of notes for
Quizzes	3 🗸	reference. Makeup quizzes will no	ot be allowed without a valid excuse.
Quilles	④ ✓		
	5 🗸		
	6 1		
	1 1		y topic introduced. Some time will be allotted during class to
	2 🗸	review the nomework assignment	s, but you will be need to spend time outside of class to accepted after their submission deadline at a -10% late
Reports	3 🗸		x of 50%. However, any homework that is copied will result
riepono	④ ✓	in a 0.	
	5 🗸	-	
	6 <		
	1	-	
	2	-	
Presentations	3	-	
	4	-	
	5	-	
	6		
		4	
	2	-	
Works	3	-	
	4	-	
	5	-	
	6 ①		
	2	-	
	3	-	
Portfolios	4	-	
	5	-	
	6	-	
	1		
	2	1	
	3	1	
Others	4	1	
	5		
	6		
Specific Achieve	ment Crite		
Descript	tion of Ide	al Achievement (10.5pt)	Description of Standard Achievement (10.5pt)
- Able to train mathematic	al equation	notion of particles into ns.	 Able to understand the translational and circular motion of particles
 Able to exp 	lain the co	oncepts of absolute and relative	- Able to understand the concepts of absolute and
motions of situations.	rigid bodie	es and apply them to real-world	relative motions of rigid bodies.
- Able to app	ly Newton	's 2 nd Law of Motion to establish	 Able to apply Newton's 2nd Law of Motion to create FBD and KD.
- Able to cal	dels of rig	id bodies in motion. analyze the effect of forces on rigid	 Able to explain the effect of forces on rigid bodies
bodies			 Able to explain the encept of inertia
		nto mathematical expressions bly equations of motion for various	- Able to explain the analyze the equations of motion
real-world	situations.	ry equations of motion for various	for systems of rigid bodies

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
1 /	Guidance and Review of Statics Students learn about the principles of dynamics and review prerequisite knowledge of statics.	Lecture	Review: Complete Assignment	200
2 /	Introduction to Kinematics Students review about the prerequisite knowledge of simple movement of a particle.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
3	Introduction to Kinetics Students review the prerequisite knowledge of Free Body Diagrams (FBD) and Newton's 1 st Law of Motion.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
4	Introduction to Kinetics Students review the prerequisite knowledge of Free Body Diagrams (FBD) and Moments of a Force.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
5 /	Introduction to Dynamics (1) Students learn about Kinetic Diagrams (KD) and Newton's 2 nd Law of Motion.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
6 /	Introduction to Dynamics (2) Students learn about Kinetic Diagrams (KD) and Newton's 2 nd Law of Motion.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
7 /	Midterm Test	Quiz and Review	Preview: Read Assigned Chapters Review: Complete Assignment	200
/	Introduction to Planar Kinematics (1) Students learn about the rotation about a fixed axis of a planar rigid body.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
	Introduction to Planar Kinematics (2) Students learn about relative motion of a planar rigid body.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
/	Introduction to Planar Kinematics (3) Students learn about the Instantaneous Center of Zero Velocity.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Introduction to Planar Kinematics (4) Students learn about relative acceleration of rigid bodies.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
	Introduction to Kinetics (1) Students learn about the Mass Moment of Inertia of composite bodies.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
/	Introduction to Kinetics (2) Students learn about the effect of forces and moments on a body rotating about a fixed axis.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
14	End of Term Test	Quiz and Review	Preview: Read Assigned Chapters Review: Complete Assignment	200
/	Review Students review their understanding of the introduced concepts.	Lecture	Preview: Prepare review questions Review: Study for the final exam	200
16 /	Final Exam			
17 /	Returning Final Exam Results			

							Inc	tructor with			ry experience
	Field		Course Name			Credits	Cou	irse	Semester	Class Style	
Dept. S Special Elective	lized		Applied Ph	ysics II		2	5224	400	Second	Lectu Tota	
Target Grade		Instructor			Office	E-mail Address Of			Office I	Hours	
5		HAN, Justir	1		nazawa C 31.119					Wednesday	4:50-5:30
				Cou	rse Objecti	ves					
	Keywords (10.5pt)					Lear			es (10.5pt)		
3 4	Work and Ener, Rigid Body Dyn Degrees of Free Vibration Damping	sj	pecialized nergy exp	l engineerii	ng subje bration.	cts. A Stude	ny body ents in th	in space ha	concepts in ving an amo ill learn to ic	unt of	
L	1 0	Co	urse Descrij	ption and	Expectation	ns for St	udents	s (10.5pt)		
minute s The prog 1. 2. 3. 4.	urse will provide self-study times gression of this Planar Kinetics Undamped Free Undamped Free Damped Free V Damped Forced	for 15 50-mir course is as fo – Work and I e Vibration ced Vibration /ibration	ute classes bllows: Energy		Ţ						
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Textbo Referen Reserv	ed Materials (tex ooks: Engineerin nce books: red books: erstanding of: - basic physi - static force - dynamic fo	tbooks, refere g Mechanics: Knowledge cs concepts s acting on rig	Dynamics, /Skills Need gid bodies	SI Editio	n (English ce This Cou	Edition)	requis	ites) (10		1292088723	
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* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation	ion Methods and Important Points (10.5pt)				
	1 1	There will be a final exam at the	end of the semester that will test you on the important				
	2 🗸	concepts introduced throughout th	ne semester.				
F	3 1						
Exams	④ ✓						
	5 🗸						
	6 🗸	1					
	1 1	There will be two 50-minute quiz	zes that will test you on the concepts introduced in the weeks				
	2 🗸		you will be allowed to prepare one sheet of notes for				
Q .	3 🗸	reference. Makeup quizzes will n	ot be allowed without a valid excuse.				
Quizzes	④ ✓	1					
	5 🗸						
	6 🗸						
	1 1		y topic introduced. Some time will be allotted during class to				
	2 🗸		s, but you will be need to spend time outside of class to				
D	3 🗸		e accepted after their submission deadline at a -10% late				
Reports	④ ✓	in a 0.	x of 50%. However, any homework that is copied will result				
	5 🗸	- in a 0.					
	6 1						
	1						
	2	1					
D	3	1					
Presentations	4	1					
	5	1					
	6	1					
	1						
	2	1					
*** 1	3	1					
Works	4	1					
	5	1					
	6	1					
	1						
	2						
DestCaller	3	1					
Portfolios	4						
	5	1					
	6]					
	1						
	2]					
0.1	3]					
Others	4]					
	5]					
	6]					
Specific Achieve							
Descrip	tion of Ide	al Achievement (10.5pt) pts of work and energy of rigid	Description of Standard Achievement (10.5pt)				
bodies to real	world situ	lations.	 Able to identify the effect of work and energy on rigid bodies. 				
- Able to create	e and analy	vze mathematical models of	- Able to identify mathematical models of undamped,				
- Able to create	e and analy	nal systems. ze mathematical models of	free vibration systems.				
undamped, fo	rced vibra	tional systems.	 Able to identify mathematical models of undamped, forced vibration systems. 				
- Able to create damped, free	e and analy vibrational	ze mathematical models of systems.	- Able to identify mathematical models of damped, free				
 Able to create 	e and analy	ze mathematical models of	vibration systems.				
damped, force	ed vibratio	nal systems. ct of masses, forces, and damping	- Able to identify mathematical models of damped,				
on the behavi	or of vibra	tion systems.	 Able to identify the behaviors of each type of vibration 				

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
1 /	Guidance and Review Students learn about the concept of vibration and review the principles of variable forces.	Lecture	Review: Complete Assignment	200
2 /	Introduction to Planar Kinetics (6) Students learn about the work and energy of a rigid body.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
	Introduction to Planar Kinetics (7) Students learn about the work and energy of a rigid body	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
/	Introduction to Vibrations Students learn about the basics of vibrations engineering.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
5	Introduction to Undamped Free Vibration Students learn about undamped free vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
6 /	Review	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
7 /	Midterm Test	Quiz and Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
8	Introduction to Undamped Forced Vibration Students learn about undamped forced vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
9	Introduction to Undamped Forced Vibration Students learn about undamped forced vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
10	Introduction to Damped Free Vibration Students learn about damped free vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
	Introduction to Damped Free Vibration Students learn about damped free vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
	Introduction to Damped Forced Vibration Students learn about damped forced vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
	Introduction to Damped Forced Vibration Students learn about damped forced vibration.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
14	End of Term Test	Quiz and Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
15	Review	Lecture	Preview: Prepare review questions Review: Study for the final exam	200
16	Final Exam			
/				
17	Returning Final Exam Results			
/				

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	Field		Course Name			Credits	Со	urse ode	semester	Class S	
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Evaluation Method	Target Ability	Evaluation Methods and Important Points (10.5pt)
	1 V	Descriptive tests are given on the content of the lectures:
	2 V	(1) Fundamentals of load analysis
Exams	3 V	(2) Characteristics of materials for machine parts(3) Static body stresses
Exams	(4) V	(5) State body stresses
	5 V	
	6 V	
		Descriptive quizzes given on the after of sections:
	2 V	 (1) Free-body-diagram (2) Characteristics of materials
Quizzes	3 V	
	5 V 6	
	1	
	2	
	3	
Reports	4	
	5	
	6	
	1	
	2	
Presentations	3	
Presentations	4	
	5	
	6	
	1	-
	2	
Works	3	-
	 4 5 	
	6	
	1	
	2	
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Portfolios	4	
	5	
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	1	
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Others	3	
oulors	4	•
	5	
Specific Achieve	6 ment Crite	ario.
		al Achievement (10.5pt) Description of Standard Achievement (10.5pt)
(1) Calculate the	magnitude	e of power, work and energy. (1) Calculate the magnitude of power, work and energy.
(2) Understand th it.	e method	(2) Challestand the method of drawing TBD.
(3) Understand th	e characte	eristics of ferrous and nonferrous (3) Understand the characteristics of ferrous alloy for machine parts.
alloy for mach (4) Understand d	iagram of	f stress and strain, and explain (4) Understand diagram of stress and strain.
relationship be	etween str	ess and strain. (5) Understand difference between axial and shear loading.
(5) Understand sta loading clearly	ane body s y.	stresses, axial, shear and torsional (6) Understand pure bending loading.
		between pure bending loading

(6)	Understand	relationship	between	pure	bending	loading
	and stresses	clearly.		-	0	Ū.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes	
	Course introduction An overview of the subject Basics of mechanics of materials	Lecture and Q&A Self-check	Understanding the course objectives Confirm the course schedule	200	
2 /	Work, energy and power	Lecture and Q&A Self-check	Preview: Reading textbook of physics Review: Solving problems	40	
3	Introduction of load analysis	Lecture and Q&A Self-check	On the textbook Preview: Reading textbook of physics Preview: Solving problems	40	
4	Drawing the FBD (free-body-diagram)	Lecture and Q&A Self-check	Review: Solving problems on the textbook Preview: Reading textbook Review: Solving problems on the textbook	160 60 140	
5	Introduction of materials	Quiz Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
6 /	Characteristics of ferrous materials Cast iron Carbon steel	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
7 /	Characteristics of nonferrous alloy materials Aluminum alloy Copper alloy	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
	Introduction of static body stresses Axial loading Direct shear loading	Quiz Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
9	Torsional loading	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
10	Basics of pure bending loading	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)	
11 /	Relationship between pure bending loading and stresses	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
12	Combined stresses Tensile and compressional stresses Shear stresses	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
13	Drawing the Mohr's circle	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
14	Thermal stresses	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140	
15	Integrated learning	Lecture and Q&A Self-check	Preview: Review: Confirming the notebook for this course	200	
16 /	Final examination	Descriptive test Self-check	Self-evaluation		
17	Review	Self-check Review			

	2024 Syllabus Instructor with "*"means an instructor with company experience											
	Field		Course Name			C	redits	Cou	irse	Semester	Class S	
Dept. S Special Mech. 1		Mee	chanics of I	of Materials II			2	540	400	Second	Lecto Tot	
Target Grade		Instructor			Office			E-ma	il Addre	ss	Office I	Hours
5]	EVANS, Dav	vis		31.309						Friday 16:	30-17:30
	Course Objectives											
	Keywords	(10.5pt)					Lear	ning	Objectiv	es (10.5pt)		
2 3 4	Stresses Strain Beam deflection Column Bucklin Failure theory			 (2) Lea (3) Uno 	derstandin rn the me derstandin	ethod o ng fail	of deter ure the	rmina ory.	tion of c	n stress and leflection of gue and sur		
			urse Descri									
minute s (1) Rela Stress (2) Met Calcula (3) Fail Colum Failure Impact Require Require Referen Reserv	n buckling	for 15 50-min application of en load and de strain definition nation of the ctional param e damages tbooks, refere als of Machir Knowledge	inte classes i mechanics eflection on, and cha beam defle heters and c ence books he Compon	s. s of mat tracteris ction leflectio , reserv ents De	terials. W stics of cr on of the ed books) esign, 7th	e will oss se beam.) (10.5 Editio	cover ction. pt) on, Asia	the fo	bllowing	topics:		ve 30 30-
No.	Program Objectives			Та	rget Abili	ties fo	or Stude	ents (9pt)			
1		to explain strai	n definition		5				1 /			
2	-	to explain the c		s of cros	s-section.							
3		to determine th				am.						
4		to explain colu										
5		to explain failu										
6	h Be able	to explain fatig	ue and surfa	ce dama	ge.							
				E	valuation	Criter	ia					
Criteria	Evaluatio	ation Method	Exams	Quizz	zes Rep	orts	Presenta	tions	Works	Portfolios	Others	Total
	Total Evaluation I	Ratio	60	40		0	0		0	0	0	100
Com	Ability to capture kno	owledge	30	20		0	0		0	0	0	50
preher Cr	Ability to think, reaso	on and create	30	20		0	0		0	0	0	50
2 6	Collaboration and le	*	0	0		0	0		0	0	0	0
trength	Announcement / Expression		0	0		0	0		0	0	0	0
	Attitude and motivati	on for learning wn by Compreher	0	0		0	0	on alage	0	0	0	0

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation	Methods and Important Points (10.5pt)
	1) V	Descriptive tests are given on the	e content of the lectures:
		(1) Strain definition	
Exams	3 2	(2) Characteristics of cross-section(3) Deflection of the beam under	
Exams	(<u>4</u>) V	(3) Denection of the beam under	bending moment
	5 V		
	6 V		
	1	Descriptive quizzes given on the (1) Deflection of the beam	after of sections:
		(2) Column buckling	
Quizzes	3 (4) レ		
	(4) レ (5) レ		
	6		
	1		
	2	-	
D. I	3		
Reports	4		
	5		
	6		
	1	-	
	2		
Presentations	3	-	
	<u>(4)</u>		
	5 6		
	1		
	2	-	
	3	-	
Works	4		
	5		
	6		
	1	-	
	2	-	
Portfolios	3		
	4		
	5 6	-	
	1		
	2	-	
	3	-	
Others	4		
	5		
	6		
Specific Achieve		al Achievement (10.5pt)	Description of Standard Achievement (10.5pt)
(1) Understand st	rain defini	tion and measurement method. ss-strain relationships and three-	(1) Understand strain definition and measurement method.
(2) Understand el dimensional N	lastic stres	s-strain relationships and three-	(2) Understand basics of elastic stress-strain relationships.
(3) Understand t	he beam	deflection and determine the	(3) Understand basics of the beam deflection.(4) Understand basics of the column hughling
magnitude of (4) Understand t	deflection.	n buckling and determine the	(4) Understand basics of the column buckling.(5) Understand some basic fracture mechanisms.
magnitude of	buckling c	conditions.	
(5) Understand c mechanisms c	lassification	on of failure type and fracture	
	2		

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1 /	Course introduction An overview of the subject Basics of mechanics of materials	Lecture and Q&A Self-check	Understanding the course objectives Confirm the course schedule	200
2 /	Strain definition Analysis of strain			
3	Beam deflection (1) Elastic stress-strain relationships and Mohr's circle	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	40 160
4	Beam deflection (2) Characteristics of cross-sectional shapes of the beam	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
5	Beam deflection (3) Deflection and spring rate in case of simple beam	Quiz Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
6 /	Beam deflection (4) Determining elastic deflections (1)	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
	Beam deflection (5) Determining elastic deflections (2)	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
8	Column buckling (1) Theories	Quiz Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
9	Column buckling (2) Determining the magnitude of buckling load	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
10	Failure theory (1) Types of failure	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11 /	Failure theory (2) Factor of safety Reliability	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
12	Impact	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
13	Fatigue	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
14	Surface damage	Lecture and Q&A Self-check	Preview: Reading textbook Review: Solving problems on the textbook	60 140
15	Integrated learning	Lecture and Q&A Self-check	Preview: Review: Confirming the notebook for this course	200
16 /	Final examination	Descriptive test Self-check	Self-evaluation	
17	Review	Self-check Review		

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Instructor with "*"means an instructor with company experience

	Field Course Name Credits Course Code Semester Class Style													
Dept. S Special Mech		I	Mea	surement I	Engine	ering		2	541	100	Second		Lecti Tota	
Target Grade			Instructor			Offi	ce	E-mail Address Office Hours				Hours		
5		Н	IUSSIEN, AI	aa		Kanaz C 31-							(Mon 16:30-1	
					(Course (Objectiv	es						
	Ke	eywords	(10.5pt)							-	ives (10.5pt			
2 S 3 T	train gau hermisto	ige-Whe ors-Theri	s- Standard d tstone bridge mocouple Shaft speed		quantity block g ise stra	y, defin gauge, s ain gaug	e terms et dial g ges to m	such a auges easure	s accu to dete the w	racy, p ect run eight c	l dimension precision, n outs, fabrio of objects, s	nean cate set th	, median, e Roberval b ermistors a	tc., wring balances, and LM35
			1								measure th			
JF	5Photo sensor- Displacementand make a photo sensor to measure the displacement in a step of 100μm.Course Description and Expectations for Students (10.5pt)													
they will students measure balance strain ga learn abo temperat encoders learn abo Require Textboo Reference Reserv Students to use la those ma	the units and dimensions of any physical quantity. Then, know the definition of some measurement terms such as accuracy, precision, mean, median, error, etc. Students will learn how to calculate the standard deviation of a set of data. In addition, they will learn function approximation using least square method. The second part will be project based learnt topics, as students will do experiments to measure some quantities using existed devices or design and fabricate their own devices to measure other quantities. First, they use block and dial gauge to detect runouts of machines. Second, fabricate a Roberval balance to measure the mass and compare it with the normal equal-arm balance. Second, they understand the structure of the strain gauge sensor and its experimental setup to measure weights of objects then do the experiment. Third, students will learn about many devices such as thermistor, thermostat, thermocouple and LM35. They will do experiments to measure the temperature of water using different sensors interfaced with Arduino microcontroller. Fourth, students study about the rotary encoders and then do an experiment to measure the speed and the direction of rotation of a dc motor shaft. Lastly, students learn about displacement sensors and then make a sensor to measure the displacement of with a resolution of 100µm. Required Materials (textbooks, reference books, reserved books) (10.5pt) Textbooks: Reference books: "Theory and Design for Mechanical Measurements" <i>Richard</i> S. <i>Figliola</i> , 6 th Ed. ISBN: 978-1-118-88127-9 Reserved books: <u>Knowledge/Skills Needed to Take This Course (Prerequisites) (10.5pt)</u> Students should master the basics of electric circuits such as Ohm's law and voltage divider rules. Students should know how to use laser cutters, 3-D printers, electric saw, drilling machines, milling machines and aware of the safety regulations of those machines. Also, they should set up and use Arduino microcontroller and create, compile and run a C ⁺⁺ code. Students should know well how to use s													
No.	Program Objectives				Тι	arget Al	oilities f	or Stud	lents (9pt)				
1	d	Able to fi	ind the units an	d dimension	s of any	y physica	l quantiti	es and u	underst	and ma	ny measurem	ents	terms	
2	d,e	Detect th	e runouts of ma	achines with	in a reso	olution of	f 1µm us	ing bloc	k and c	lial gau	ges.			
3	d,b,e		nd the design f								× •		× ·	
 4 5 	d,b,e d,b,e		periments to m											
6			periments to m hoto sensor by										Juer.	
		primie u p	1010 001001 09	using u priot		Evaluati			e une un					
Criteria	and Ratio		tion Method	Exams	Quiz	zes]	Reports	Present	tations	Worl	ks Portfol	lios	Others	Total
	Total Ev	aluation R	atio	30	20)	20	0)	30	0		0	100
Com	Ability to c	<u>.</u>		10	10)	10	0)	0	0		0	30
prehen Cri	Ability to th	nink, reason	n and create	10	10		5	0		10	0		0	35
ass	Collaborati		•	0	0		0	0		10	0		0	10
rength		-	Communication	0	0		0	0		5	0		0	5
			on for learning on by Compreher	10 nsive Strength	0 Criteria		5 oximate g	0 uideline			ement.		0	20

Evaluation Method	Tar Abi		Evaluation Methods and Important Points (10.5pt)
	① ② ③	レ	There will be one exam, the final exam which will cover materials studied in the whole semester. It is worth 30% of your final grade. It is crucial that you study all your notes, worksheets before the exam.
Exams	④④⑤	レレ	
	6	レ	
	① ②		After the 8 th class, there will be a mid-term test. It will cover the material studied in the previous 8 classes. It is worth 20% of the final grade.
Quizzes	3	\mathcal{V}	
Quilleos	4	V	
	5	レ	
	6 1	レレ	Every class the students are given a worksheet contains questions and problems to be solved as
	2		a homework. The worksheet of each class should be submitted at the beginning of the next
	3	*	class. The grading criteria will be based on content acquisition (10%) and quality of work
Reports	4	V	through showing clear steps on how students get the answers (10%) . The homework equates
	5	レ	20% of the total score.
	6	レ	
	1		
	2		
Presentations	3		
	4		
	5		
	⑥	V	The work will be done either individually or in groups. The grading criteria is explained in the
-	2		work rubric and will be based on the following:
	3	レ	1-Design and /or implementation: How did each student or group could conceive the best
Works	4	\mathcal{V}	design and how they could set up the experiment or fabricate the device? (10%)
	5		2-Operation: How reliable is the product or how good are the results and how could they find and figure out any problem arises? (10%)
	6		3-Report: each student should submit a report to describe the work and show the results. (10%)
	1		
	2		
Portfolios	3		
	4		
	5 6		
	1		
	2		
Others	3		
Others	4		
	5		
	6	<u> </u>	·
Specific Achieve Description			al Achievement (10.5pt) Description of Standard Achievement (10.5pt)
1-Students are able experiment set up 2-Measure the wei	e to co to me ight, to	oncei	ive the best design and e different quantities. erature, speed, displacement, and 2-Measure the weight, temperature, speed, displacement,
analyze the results		-	and ask for help to evaluate the results.
used for measuring	g the t	temp	erature.
4-Use the technolo D printer to make	ogy su the no	ich C arts o	AD software, laser cutter and 3- f the products 4-Use some technology such as laser cutters and 3-D
5-Determine and f experiment.	igure	out a	any problem arises during the printers.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes	
1 /	Course guidance Introduction to measurement The units of physical quantities Dimensional analysis of physical quantities	Course outlines and class style. A lecture demonstrates the topic Solving a worksheet.	Read the course syllabus and review the notes of the lecture. Complete solving the questions of the worksheet.	200	
2 /	Measurements terms definitions. Measurement error and error propagation.	A lecture demonstrates the topic. Solving a worksheet.	Review materials of last class. Do the assignments. Prepare for the next class.	200	
3 /	Standard deviation Z- score	A lecture demonstrates the topic. Solving a worksheet.	Review materials of last class. Do the assignments. Prepare for the next class.	200	
4	Function approximation. Taylor series-Least square method.	series-Least square method. the topic. Solving a worksheet. neasurement (1).			
5 /	Mass measurement (1). Equal-arm balance- Roberval balance.				
6 /	Mass measurement (2) Roberval balance design and implementation Area Measurement using Plainmeter	Hands-on session for implementation.	Review materials of last class. Make the report. Prepare for the next class.	200	
7 /	Force measurement (1) Introduction to sensors (strain gauge sensor).	A lecture demonstrates the topic. Solving a worksheet.	Review materials of last class. Do the assignments. Prepare for the next class.	200	
8	Force Measurement (2) An experiment of measuring the weight of an object.	Hands-on session.	Review materials of last class. Make the report. Study for the mid-term test.	200	
9 /	Mid-term test Length measurement.	Test on the contents of class #1- class #8 A lecture demonstrates the topic. Solving a worksheet.	Review materials of all classes. Do the assignments. Prepare for the next class.	200	
10	Temperature measurement (1) Introduction to temperature sensors (Thermostat- Thermistor-Thermocouples)		Review materials of last class. Do the assignments. Prepare for the next class.	200	

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11 /	Temperature measurement (2) An experiment of measuring the temperature of some water using different sensors	Hands-on session.	Review materials of last class. Make the report Prepare for the next class.	200
12	Displacement measurement (1) Introduction to displacement sensors.	A lecture demonstrates the topic. Solving a worksheet.	Review materials of last class. Do the assignments. Prepare for the next class.	200
13	Displacement measurement (2) An experiment to measure the displacement of a shutter using a photo diode.	Hands-on session	Review materials of last class. Make the report Prepare for the next class.	200
14	Speed measurement (1) Introduction to rotary encoders. Absolute encoder.	A lecture demonstrates the topic. Solving a worksheet.	Review materials of last class. Do the assignments. Prepare for the next class.	200
15 /	Speed measurement (2) An experiment of measuring the speed of a dc motor shaft using a rotary encoder.	Hands-on session	Review materials of last class. Make the report. Study for the final exam.	200
16	Final Exam	Exam on the contents of classes #1 to class #15	Study for the final exam	200
	Final Exam Return. Self-check.	Return the exams results.		

							In	structor with	"*" means an instru	ctor with compan	y experience
	Field		Course N	Name		Credits		urse ode	Semester	Class S	Style
Dept. S Special Mech. 1		0	Control Eng	gineering	5	2	540	800	Second	Lectu Tota	
Target Grade		Instructor			Office		E-mail Address			Office I	Hours
5]	KUSHIMA, Yos	hihiro		31.117					16:50~	17:30
				Сс	ourse Objecti	ives					
	Keywo	ords (10.5pt)		Learning Objectives (10.5pt)							
2 3 4	Frequency response	 transform transform function, block diagram cy response, transient (1) Learn the basics of developing control system (2) Learn Laplace transformation and the transfer functions of control system (3) Learn the simulation method of control system by MATLAB/Simulink (4) Learn the basics of control system analysis based on the transient and 							mulink		
	Disciminati		urse Deser	ntion on	d Expectatio	ng for St	udant	a (10 5m	+)		
ninuite This is a L. Lapla 2. Trans 3. Block 4. Bode 5. Stabil 5. Desig 5. Desig 5. Desig 5. Desig 6. Desig 8. Students 5. Students 8. Stabil 9. Students 8. Stabil 9. Students 8. Stabil 9. Stabil 9. Students 8. Stabil 9.	self-study tin a basic course ace transform of a function a diagram diagram lity of control gn of control es are expected of a control ed Materials (ooks: nce books: C	l system system d to understand t system. (textbooks, refere Control Engineer	he meaning ence books ing: MATI	s. e will co g of the a , reserve _AB Exc	ver the follo analysis met d books) (10 ercises	wing top hod for ().5pt)	pics:	ol system	as and expected		
										ses.	
	Program					e mecha	inics a	and math		ses.	
	Program Objectives					e mecha	inics a	and math		ses.	
1	Objectives h, i Be a	ble to Laplace trans	-	Tar le mathen	ontents of th get Abilities natical model of	e mecha for Stud	ents (m and	and math 9pt)	ematics cours		
1	Objectives h, i Be a h, i Be a	ble to use MATLA	B/Simulink t	Tar le mathen o create a	ontents of th get Abilities natical model of block diagram	e mecha for Stud of a system n of a system	ents (m and tem.	and math 9pt) express it	using a transfer	function.	
① ② ③	Objectives h, i Be a h, i Be a h, i Be a	ble to use MATLA	B/Simulink t	Tar le mathen o create a acteristics	ontents of th get Abilities natical model of block diagram s of a system a	for Stud of a system of a system s transiem	ents (m and tem. t and fi	9pt) express it	using a transfer	function.	
1) ② ③ ④	Objectivesh, iBe ah, iBe ah, iBe ah, iBe a	ble to use MATLA ble to express the d ble to can use MAT	B/Simulink t lynamic char ILAB/Simul	Tar le mathen o create a acteristics ink to sim	ontents of th get Abilities natical model of block diagram s of a system as nulate the respo	for Stud of a system of a system s transiem	ents (m and tem. t and fi	9pt) express it	using a transfer	function.	
① ② ③	Objectivesh, iBe ah, iBe ah, iBe ah, iBe ah, iBe a	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate	B/Simulink t lynamic char ILAB/Simuli the stability	Tar le mathen o create a acteristics ink to sim of control	ontents of th get Abilities natical model of block diagram s of a system as nulate the respo	for Stud of a system of a system s transiem	ents (m and tem. t and fi	9pt) express it	using a transfer	function.	
1) ② ③ ④ ⑤	Objectivesh, iBe ah, iBe ah, iBe ah, iBe ah, iBe a	ble to use MATLA ble to express the d ble to can use MAT	B/Simulink t lynamic char ILAB/Simuli the stability	Tar le mathen to create a acteristics ink to sim of control	get Abilities natical model of block diagram of a system a ulate the response system.	for Stud of a system n of a system s transient onsiveness	ents (m and tem. t and fi	9pt) express it	using a transfer	function.	
① ② ③ ④ ⑤	Objectivesh, iBe ah, iBe ah, iBe ah, iBe ah, iBe ah, iBe ah, iBe a	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate	B/Simulink t lynamic char ILAB/Simuli the stability	Tar le mathen to create a acteristics ink to sim of control	get Abilities natical model of block diagram of a system a ulate the response system.	for Stud of a system n of a system onsiveness teria	ents (m and tem. t and fi s of co	9pt) express it	using a transfer	function.	Total
① ② ③ ④ ⑤	Objectives h, i Be a	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate ble to design the co valuation Method	B/Simulink t lynamic char FLAB/Simul- the stability ontrol system	Tar le mathen to create a acteristics ink to sim of control Ev	get Abilities natical model of block diagram of a system a ulate the response system.	for Stud of a system n of a system onsiveness teria	ents (m and tem. t and fi s of co	9pt) express it requency ntrol syste	using a transfer response charac	teristics.	Total
① ② ③ ④ ⑤ Criteria	Objectives h, i Be a h, i Be a	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate ble to design the co valuation Method ion Ratio	B/Simulink t lynamic char ILAB/Simuli the stability on trol system Exams	Tar le mathem o create a acteristics ink to sim of control Ev Quizze	get Abilities natical model of block diagram of a system as ulate the respon- system. valuation Crit es Reports	for Stud of a system n of a system s transient onsiveness teria	ents (m and tem. t and ft s of co	9pt) express it requency ntrol syste Works	using a transfer response charac ems. Portfolios	function. teristics.	
① ② ③ ④ ⑤ Criteria	Objectives h, i Be a h, i Be a	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate ble to design the co valuation Method ion Ratio	B/Simulink t lynamic char FLAB/Simuli the stability operation ontrol system Exams 35	Tar le mathem o create a acteristics ink to sim of control Quizze 20	get Abilities natical model of block diagram s of a system a ulate the response system. valuation Crit es Reports 35	for Stud of a system of a system s transient onsiveness teria Present 0	ents (m and tem. t and fi s of co	9pt) express it requency ntrol syste Works 0	using a transfer response charac ems. Portfolios	function. teristics. Others 10	100
① ② ③ ④ ⑤ Criteria	Objectives h, i Be a h, i Be a	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate ble to design the co valuation Method ion Ratio e knowledge reason and create	B/Simulink t lynamic char FLAB/Simul- the stability on trol system Exams 35 15	Tar le mathen o create a acteristics ink to sim of control	get Abilities natical model of block diagram of a system as ulate the responsive system.	for Stud of a system n of a system s transient onsiveness teria Present 0 0	ents (m and tem. t and fi s of co	9pt) express it requency ntrol syste Works 0 0	using a transfer response characems.	Others 10 0	100 35
① ② ③ ④ ⑤ Criteria Comprehensive S Criteria	Objectives h, i Be a h, i Be a cand Ratio Total Evaluat Ability to captur Ability to think, Collaboration ar	ble to use MATLA ble to express the d ble to can use MAT ble to discriminate ble to design the co valuation Method ion Ratio e knowledge reason and create	B/Simulink t lynamic chars TLAB/Simuli the stability o ontrol system Exams 35 15 20	Tar le mathen o create a acteristics ink to sim of control Quizze 20 10 10	get Abilities natical model of block diagram s of a system as ulate the response system. valuation Critic Reports 35 10 10	for Stud of a system n of a system s transient onsiveness teria Present 0 0 0 0	ents (m and tem. t and fi s of co	9pt) express it requency ntrol syste Works 0 0 0	using a transfer response characers. Portfolios 0 0 0	function. teristics. Others 10 0 0 0 0	100 35 40

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method		get lity	Evaluation	ion Methods and Important Points (10.5pt)				
	1		A semester final examination is g	given, as specified in the course schedule, to evaluate your				
	2	\checkmark	degree of achievement comprehe	nsively.				
E	3	\checkmark						
Exams	4	\checkmark						
	5	\checkmark						
	6	\checkmark						
	1	\checkmark	Several 50-minute quizzes are given the second se	ven to improve comprehension.				
	2	\checkmark						
Ouieres	3	\checkmark						
Quizzes	4	\checkmark						
	5	\checkmark						
	6	\checkmark						
	1			reports to demonstrate their understanding of assigned topics				
	2	\checkmark	and issues.					
Doports	3	\checkmark						
Reports	4	\checkmark						
	5	\checkmark						
	6	\checkmark						
	1							
	2							
Presentations	3							
riesentations	4							
	5							
	6							
	1							
-	2							
Works	3							
WOIKS	4							
	5							
	6							
	1							
	2							
Portfolios	3							
1 ortionos	4							
	5							
	6							
	1			on learning efforts in lectures and practices and report				
	2	•	submission.					
Others	3	\checkmark						
	4	\checkmark						
	5	\checkmark						
Specific Achieve	<u>6</u>	√ Crita						
			al Achievement (10.5pt)	Description of Standard Achievement (10.5pt)				
(1) Students can d	esign		rol systems for simple	(1) Students can understand the elements necessary for				
mechanical system		e the	mathematical model of an	designing control systems for mechanical systems.				
automatic control	syster	m as	a transfer function.	(2) Students can explain the transfer function.(2) Students can explain the dynamic characteristics of				
(3) Students can e	xpres	s the	dynamic characteristics of the transient and frequency response	(3) Students can explain the dynamic characteristics of control systems.				
characteristics, and	dexp	lain v	what they mean.	(4) Students can explain how to determine the stability of				
(4) Students can d	eterm	ine a	nd confirm the stability of the	the control system.				
designed control s (5) Students can u	ysten se M	i. ATL	AB / Simulink to simulate the	(5) Students can simulate control system responses with MATLAB / Simulink.				
response character	istics	of d	esigned control system.	WATLAD / SIIIIUIIIIK.				

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
	Course introduction MATLAB/Simulink Installation	Guidance Lecture and Q&A	Understand the objectives of the course	200
2	How to use MATLAB/Simulink	Lecture and Q&A	Review lecture content and assignments	200
	Laplace Transforms Inverse Laplace Transforms	Quiz Lecture and Q&A	Review lecture content and assignments	200
	Logarithmic Graph Unit of Gain	Lecture and Q&A	Review lecture content and assignments	200
	Frequency Response Nyquist Plot	Lecture and Q&A	Review lecture content and assignments	200
6 /	Review for Quiz	Review	Prepare for quiz	200
7	Quiz	Quiz	Review	200
	Quiz Return Bode Plot (1)	Lecture and Q&A	Review lecture content and assignments	200
9	Bode Plot (2)	Lecture and Q&A	Review lecture content and assignments	200
10	Stability Analysis (1)	Lecture and Q&A	Review lecture content and	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11 /	Stability Analysis (2)	Lecture and Q&A	Review lecture content and assignments	200
12	Arduino MATLAB/Simulink Exercises (1)	Lecture and Q&A	Review lecture content and assignments	200
13	Arduino MATLAB/Simulink Exercises (2)	Lecture and Q&A	Review lecture content and assignments	200
14	Arduino MATLAB/Simulink Exercises (3)	Lecture and Q&A	Review lecture content and assignments	200
15	Review for Final Exam	Review	Prepare for the final exam	200
16 /	Final Exam	Exam	Review all materials	
17 /	Returning Final Exam Results	Review Self-evaluation		

				20.	24 Sylla	DUS		In	structor wif	h "*"means an in	structor with compa	ny experience
	Field		Course Name			C	Credits	Co	urse ode	Semester	Class	
Dept. S Special Mech. I		М	laterials En	gineer	ing		2	541	000	First	Lect To	
Target Grade		Instructor			Office	e		E-ma	il Addro	ess	Office Hours	
5		HAN, Justin	1		Kanazaw 31.11						Wednesday	4:50-5:30
				(Course Ol	ojectiv	es					
		words (10.5pt)				•				ves (10.5pt)	1 1 1 1 1	1
2 3 4		- In the metanical used in the design of mechanical nexts. Students will be me										
			urse Descri	ption a	and Expec	tation	s for St	udent	s (10.5p	ot)		
		ovide total-time cr mes for 15 50-min	edits. 45 50)-minu							ts need to ha	ve 30 50-
 The progression of the course is as follows' Overview of the 4 Basic Classifications of Materials used in Engineering and Industry Introduction to Fracture Mechanisms Introduction to common Fabrication and Processing Methods Economic, Environmental, and Societal Issues in Materials Engineering 												
Require Textbo th Editi	ed Materials oks: Funda	n the students' abi (textbooks, reference) mentals of Materia 978-1119820543	ence books	, reserv	ved books	s) (10.5	ipt)			h, Internatio	nal Adaptati	on,
		Knowledge c chemistry conce								0.5pt)		
No.	Program Objectives			Ta	arget Abil	ities fo	or Stud	ents (9pt)			
1	5	e able to categorize n	naterials base	d on pr	operties							
2		e able to analyze and	determine m	ode of f	fracture for	each c	lass of n	nateria	1			
3	h Be	e able to select appro	priate materi	als acco	ording to ap	plicatio	on					
4	a, d Be	e able to select appro-	priate fabrica	tion and	d processin	g meth	ods acco	ording	to design	n requirements		
5	b, h Be	e able to connect con	cepts to appl	ications	in modern	indust	y and so	ociety				
6	a, g, i Be	e able to extrapolate j	potential app					eir pro	perties			
Criteria	and Ratio	Evaluation Method	Exams	I Quiz	Evaluatior zes Re	n Criter eports	ria Presenta	ations	Works	s Portfolio	s Others	Total
	Total Evalu	ation Ratio	35	30)	35	0		0	0	0	100
Co.	Ability to capt	ure knowledge	25	20)	15	0		0	0	0	60
mpreh	Ability to think	c, reason and create	10	10)	10	0		0	0	0	30
ensive	Collaboration	and leadership	0	0		0	0		0	0	0	0
Comprehensive Strength Criteria	Announcement / Ex	pression / Communication	0	0		0	0		0	0	0	0
gth	Attitude and m	otivation for learning	0	0		10	0		0	0	0	10
		vn shown by Comprehe	÷			-					5	10

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method Ability Evaluation Methods and important Points (10.5pt) Image: Constraint of the semister of the semister. Image: Constraint of the semister of the semister of the semister of the semister of the semister. Image: Constraint of the semister of the semister of the semister of the semister. Image: Constraint of the semister of the semister. Image: Constraint of the semister of the semister of the semister. Image: Constraint of the semister. Image: Constraint of the semister of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Constraint of the semister. Image: Consemister.	throughout ents of the rk that you							
Exams 3 - the semester. 4 - - - 5 - - - 6 - - - 1 - There will be a short quiz every 2 weeks at the beginning of class about the con previous two classes. For these quizzes, you are allowed to use your own homework have completed as reference material for the quiz. You are not allowed to use your the internet, cellphones, class notes, or anyone else's notes. Makeup quizzes will not without a valid excuse. 6 -	ents of the rk that you							
Exams 3 7 4 7 5 7 6 7 0 7 0 7 0 7 0 7 0 7 1 7 1 7 1 7 1 7 1 7 1 7 1 1	rk that you							
4 7 5 7 6 7 6 7 1 7 7 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 1 1	rk that you							
Image: Constraint of the second se	rk that you							
Quizzes 1 ✓ There will be a short quiz every 2 weeks at the beginning of class about the conprevious two classes. For these quizzes, you are allowed to use your own homework have completed as reference material for the quiz. You are not allowed to use your the internet, cellphones, class notes, or anyone else's notes. Makeup quizzes will not without a valid excuse. 6 ✓	rk that you							
Quizzes Quizzes	rk that you							
Quizzes Qui								
Quizzes Qui								
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$								
	t be given							
\square \checkmark There will be homework every week based on the concepts taught in class. Homew								
\bigcirc collected alongside the quizzes. It is important that you understand the what is being the second seco								
	h problem and your individual answer to those problems as they will be your reference							
Reports materials for the quizzes. Furthermore, the contents of the homework will con following week's topics. Due to this, homework must be done in a timely materials								
	nework will be accepted after their submission deadline at a -10% late penalty per school day							
\bigcirc \checkmark up to a max of -50%. However, any homework that is copied will result in a 0.	j							
2								
Presentations								
Presentations								
5								
6								
2								
W. L. 3								
Works ④								
5								
6								
2								
Portfolios								
<u>(5)</u>								
6								
Others								
5								
Specific Achievement Criteria Description of Ideal Achievement (10.5pt) Description of Standard Achievement (10.5	nt)							
- Able to explain the properties attributed to the basic - Able to identify general properties of the								
material types and subtypes. material types								
 Able to explain the cause of fracture and propose methods for prevention Able to identify the mode of fracture of ma 								
- Able to develop prospective applications of materials - Able to give a simple reason for using a m	aterial							
 with valid supporting arguments Able to propose fabrication methods based on desired an application Able to identify the method of fabricat 	on of							
specifications, budget, and environmental effects material parts								
- Able to propose materials for use in real-world applications based on desired specifications	n real-							
- Able to explain the reason for the application of a Able to identify the reason for the application	on of a							
material - Able to identify the reason for the application material	/11 UI a							

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1 /	Guidance Students learn about the history of materials in engineering and about the 4 classes of materials used in modern industry.	Lecture	Review: (1) Read and understand the rules and regulations that are being applied to the course. (2) Read the relevant chapters.	200
2 /	Crystal Structure (1) Students learn about the differences in the crystal structure of each classification of material.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
3 /	Crystal Structure (2) Students learn about the differences in the crystal structure of each classification of material.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
4	Crystal Structure (3) Students learn about Phase Diagrams for metals and ceramics.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
5	Crystal Structure (4) Students learn about how the crystal structure of each class of material affects their physical properties.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
6 /	Material Evaluation Methods Students learn about how the properties of materials are evaluated.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
7 /	Fracture Mechanisms (1) Students learn about the modes of fracture for each class of material.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
8	Fracture Mechanisms (2) Students learn about the factors that can affect the mode of fracture for each material.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
9 /	Types and Application of Materials Students learn about the different types and applications for each class of materials.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200
10	Fabrication and Processing (1) Students learn about common fabrication methods for metal materials.	Lecture	Preview: Read Assigned Chapters Review: Complete Assignment	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11	Fabrication and Processing (2) Students learn about common fabrication and	Lecture	Preview: Read Assigned Chapters	200
/	processing methods for ceramic materials.		Review: Complete Assignment	
12	Fabrication and Processing (3)	Lecture	Preview: Read Assigned Chapters	200
/	Students learn about common fabrication and processing methods for polymer materials.		Review: Complete Assignment	
13	Fabrication and Processing (4)	Lecture	Preview: Read Assigned Chapters	200
/	Students learn about common fabrication and processing methods for composite materials.		Review: Complete Assignment	
14	Economic, Environmental, and Societal Issues in Materials Engineering (1)	Lecture	Preview: Read Assigned Chapters	200
/	Students learn about the influence of materials on modern society.		Review: Complete Assignment	
15	Economic, Environmental, and Societal Issues in Materials Engineering (2)	Lecture	Preview: Read Assigned Chapters	200
/	Students learn about the influence of materials on modern society.		Review: Complete Assignment	
16	Final Exam			
/				
17	Final Exam Return			
/				

FieldCourse NameCreditsCourse CodeSemesterClass StyleDept. S Special Mech. EventionThermal Engineering2540700FirstLecture TotalMarcelInstructorOffice $$		Instructor with "*"means an instructor with company experience								
Specialized Mech. ElectiveThermal Engineering2540700FirstLecture TotalTarget GradeInstructorOfficeE-mail AddressOffice Hours5FUKUE, TakashiYatsukaho C 61.210-Make an appointment in class5FUKUE, TakashiYatsukaho C 61.210-Make an appointment in class1Carnot CycleThe goals of this course are to; (1) understand basic knowledge about the irreversibility in the nature world. (2) learn how to convert energy and obtain work from heat. acquire design skills for energy conservation, effective utilization of energy resources and energy conservation in mechanical engineering.1Thermal CyclesThermad grade of the convert energy and obtain work from heat. acquire design skills for energy conservation in mechanical engineering.3Thermal CyclesThermal Engineering.		Field	Course	Name		Credits		Semester	Class Style	
GradeInstructorOfficeE-mail AddressOffice Hours5FUKUE, TakashiYatsukaho C 61.210Make an appointment in class5FUKUE, TakashiYatsukaho C 61.210Make an appointment in classCourse Objectives1Carnot CycleThe goals of this course are to; (1) understand basic knowledge about the irreversibility in the nature world. (2) learn how to convert energy and obtain work from heat. acquire design skills for energy conservation, effective utilization of energy resources and energy conservation in mechanical engineering.4Real GasThermal Cycles	Special	ized	Thermal Engineerin		ngineering 2 540700 First		First			
5 FORUE, Takasm 61.210 in class 5 in class Course Objectives Course Objectives Course Objectives Course Objectives (10.5pt) 1 Carnot Cycle The goals of this course are to; 2 The Second Law of Thermodynamics The goals of this course are to; 3 Entropy, Exergy (1) understand basic knowledge about the irreversibility in the nature world. 4 Real Gas course design skills for energy conservation, effective utilization of energy resources and energy conservation in mechanical engineering. 5 Thermal Cycles	-		Instructor		Office		E-mail Add	lress	Office Hours	
Keywords (10.5pt)Learning Objectives (10.5pt)1Carnot Cycle2The Second Law of Thermodynamics3Entropy, Exergy4Real Gas5Thermal Cycles	5	F	UKUE, Takashi							
1Carnot Cycle2The Second Law of Thermodynamics3Entropy, Exergy4Real Gas5Thermal Cycles				(Course Object	ives				
 Charlot Cycle The Second Law of Thermodynamics Entropy, Exergy Real Gas Thermal Cycles 		Keywords	(10.5pt)			Learning Objectives (10.5pt)				
	1Carnot CycleThe goals of this course are to;2The Second Law of Thermodynamics(1) understand basic knowledge about the irreversibility in the nature work3Entropy, Exergy(2) learn how to convert energy and obtain work from heat.4Real Gasacquire design skills for energy conservation, effective utilization of energy conservation in mechanical engineering.						n heat. e utilization of energy			
	5	Thermal Cycles	Course Desci	ription a	and Expectation	ons for St	udents (10.5	5pt)		

This course will provide total-time credits. 45 50-minute study times are worth one credit, and students need to have 30 50minute self-study times for 15 50-minute classes.

This course follows Thermodynamics. Thermodynamics mainly dealt the quantitative conservation of energy through the explanation of thermal equilibrium and the 1st law of thermodynamics. Based on the knowledge of Thermodynamics, this class conducts the necessary skills and knowledge of thermal engineering needed to design actual thermal equipment. The class explains a qualitative evaluation of energy and effective utilization of energy resources based on the 2nd law of thermodynamics, the basic concepts of heat engines and knowledge of properties of vapor as an example of real gas. Especially, this class covers the following topics:

(1) Thermal efficiency and Carnot cycle, (2) The 2nd law of thermodynamics, (3) Entropy, Exergy,

(4) Thermal characteristics of real gas, (5) Gas cycles

Students are expected to understand the meaning of terms and formulas. Students are expected to solve the exercises by yourself. Students should be aware of the instructor's explanation in the class, because the schedules of quizzes, tests and reports may change as the class progresses. Students should not be absent from the class, as the handouts may not be received. Detailed schedules and contents of the course are explained in the first class.

Required Materials (textbooks, reference books, reserved books) (10.5pt)

Textbooks: Thermodynamics, English-Japanese Bilingual Textbook Series of Fundamental Engineering, Masataka Arai and Tomohiko Furuhata, Morikita Publishing.

Reference books: Technical Thermodynamics for Engineers -Basic and Applications-, Achim Schmidt, Springer. Reserved books: N/A

Knowledge/Skills Needed to Take This Course (Prerequisites) (10.5pt)

Enough skill of mathematics (especially differential / integral calculations) How to use a calculator

No.	Program Objectives		Target Abilities for Students (9pt)										
1	g, h, i	e able to explain the Carnot cycle and apply the knowledge to problems											
2	g, h, i	Be able to explain the 2	e able to explain the 2 nd law of thermodynamics										
3	g, h, i	Be able to explain entro	py and exerg	y and apply t	he knowledg	e to problems	5						
4	g, h, i	Be able to explain the c	haracteristics	of a real gas	with phase c	hange and ap	ply the skills	to problems					
5	g, h, i	Be able to explain gas c	ycles and app	oly the knowl	ledge to prob	lems about de	esign of ther	nal equipmen	ıt				
6													
_				Evalu	ation Criter	ia							
Criter	ia and Ratio	Evaluation Method	Exams	Quizzes	Reports	Presentations	Works	Portfolios	Others	Total			
	Total Ev	valuation Ratio	0	70	30	0	0	0	0	100			
Co	Ability to c	apture knowledge	0	25	0	0	0	0	0	25			
npreh C	Ability to the	hink, reason and create	0	35	10	0	0	0	0	45			
Comprehensive Strength Criteria	Collaborati	ion and leadership	0	0	0	0	0	0	0	0			
Stren	Announcement	/ Expression / Communication	0	0	10	0	0	0	0	10			
gth	Attitude an	d motivation for learning	0	10	10	0	0	0	0	20			

^k The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Targ Abil		Evaluatio	n Methods and Important Points (10.5pt)
	1			
	2			
Exams	3			
Exams	4			
	5			
	6			
	1	1	Tests are conducted several times	s during class to confirm learning of the course content.
	2	1		
	3	1		
Quizzes	4	1		
	5	1		
	6			
	1	1	Several reports need to be prepar	ed as homework. The content of the reports includes previews
	2	1	and reviews of class topics.	
D	3	1		
Reports	4	1		
	5	1		
	6			
	1			
	2			
D	3			
Presentations	(4)			
-	5			
	6			
	1			
	2			
	3			
Works	4			
	5			
	6			
-	1			
	2			
	3			
Portfolios	4			
	5			
	6			
	1			
	2			
	3			
Others	4			
	5			
	6			
Specific Achieve				
			al Achievement (10.5pt) rmodynamics. Also, use this	Description of Standard Achievement (10.5pt)
understanding to so issues.	olve ad	lvanc	red problems related to thermal	(1) Explain the 2nd law of thermodynamics. Also, use this understanding to solve basic problems related to thermal issues.
(2) Explain Carnot	cycle.	Also	b, use this understanding to solve	(2) Explain Carnot cycle. Also, use this understanding to
advanced problems (3) Explain a real g			haracteristics. Also, use this	solve basic problems related to thermal issues.
understanding to so	olve ad	lvanc	red problems related to thermal	(3) Explain a real gas and its characteristics. Also, use this
issues. (4) Explain the vari	ious o	as cv	cles and the vapor cycle with P-V	understanding to solve basic problems related to thermal issues.
and T-S diagrams. systems.	Also, e	evalu	late the performance of thermal	(4) Explain the various gas cycles and the vapor cycle with P-V and T-S diagrams. Also, evaluate the performance of
				thermal systems.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1	Introduction - Guidance for the course - Differences of Thermodynamics and Thermal Engineering Lecture: The 2 nd law of Thermodynamics (1): - Concept of cycle - Thermal efficiency, Coefficient of performance (COP)	Lecture Self-check	Review the contents of Thermodynamics and prepare chpt. 12.1 and 12.3 on the textbook. Review	100 100
2 /	Lecture: The 2 nd law of Thermodynamics (2): - Reversible and irreversible processes - Characteristics of Carnot cycle - Expression of the 2 nd law of thermodynamics - Clausius' integral	Lecture Exercise Self-check	Prepare chpt. 9, 12.4, 13.1 - 13.4 on the textbook. Review	100 100
3	Lecture: The 2 nd law of Thermodynamics (3): - Definition of Entropy - T-S diagram - Equations for entropy change	Lecture Exercise Self-check	Prepare chpt. 6, 7.1 – 2 on the textbook. Review	100 100
4	Lecture: The 2 nd law of Thermodynamics (4): - Entropy change of ideal gas - Entropy change of liquids and solids	Lecture Exercise Self-check	Prepare chpt. 8 on the textbook. Review	100 100
5	Lecture: The 2 nd law of Thermodynamics (5): - Exergy - Free energy Review of the 2 nd law of Thermodynamics	Lecture Exercise Self-check	Prepare chpt. 6.4 and 13.6 on the textbook. Review	100 100
6 /	Test (1) : The 2 nd law of thermodynamics	Test Self-check	Review the previous contents of the 2 nd law of thermodynamics. Review	150 50
7 /	Lecture: Characteristics of real gas (1) - Difference of ideal gas and real gas - Phase change	Lecture Exercise Self-check	Prepare chpt. 3.1 and prepare chpt. 15.1 on the textbook. Review	100 100
8	Lecture: Characteristics of real gas (2) - van der Waal's equation of state - Wet saturated vapor	Lecture Exercise Self-check	Prepare chpt. 15.2 – 15.3 on the textbook. Review	100 100
9 /	Lecture: Characteristics of real gas (3) - Thermodynamic state change of water vapor - Example of calculation of characteristics of vapor	Lecture Exercise Self-check	Prepare chpt. 15.4 on the textbook. Review	100 100
10	Review of the characteristics of real gas Test (2) : Characteristics of real gas	Test Lecture Self-check	Review the previous contents of the characteristic of real gas. Review	150 50

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11 /	Lecture: Gas cycles and their characteristics (1) - Internal combustion engine - Constant volume cycle	Lecture Exercise Self-check	Prepare chpt. 14.2 - 14.3 on the textbook. Review	100 100
12	Lecture: Gas cycles and their characteristics (2) - Constant pressure cycle - Sabathe cycle	Lecture Exercise Self-check	Prepare chpt. 14.4 - 14.5 on the textbook. Review	100 100
/	Lecture: Gas cycles and their characteristics (3) - Brayton cycle Review of the gas cycles	Lecture Exercise Self-check	Prepare chpt. 14.6 on the textbook. Review	100 100
	Review (1) Whole quiz	Quiz Lecture Self-check	Review the previous contents Review the quiz	120 80
	Review (2) Review of whole contents of thermal engineering	Review Lecture Self-check	Review the previous contents	100 100

				20.	24 5	yllabus		Te	atmator m	ith "*"ma	one on instru	ator with compo	w oversion co
	Field		Course M	Name		(Credits	Co	ode	Seme		Class S	
Dept. S Special Mech. l			Programm	ning A			2	531	400	Firs	st	Exerc Cla	
Target Grade		Instructor			0	office		E-ma	ail Add	ress		Office l	Hours
5		POKU, Davi	id			KC -118-1						9:00-1	7:00
		Course Objectives (10.5pt) Learning Objectives (10.5pt)											
	Keyword	s (10.5pt)		Learning Objectives (10.5pt)									
1ProgrammingThe use of computers is a vital component of modern society. Continuing into2PythonThe use of computers is a vital component of modern society. Continuing into3Data Structuresin society. Understanding how those programs operate will allow engineers to4Computationoperate and work more effectively. In this course, students will learn the5Mechatronicsapply to mechanical engineering.									s burdens ngineers to n the				
administ applicati developp learning Require Textbo Referen Reserv	dling, object-ori tration, and mo- ions in fields lil ment, and block to a comprehen ed Materials (tex oks: nce books: ed books: dge and experie	re. Each week ac cybersecuri achain technol nsive, real-wo atbooks, refere Knowledge	focuses or ity, finance ogy. The c rld problem ence books	n a spec , scient ourse c n. , reserv	ved be	aspect of F computing nates in a	Python, , graph capstor 5pt)	ensu ic des ne pro	ring a t sign, Io jject, a	horoug T, clou llowing	h unders	standing of uting, game	its
No.	Program Objectives			Та	arget	Abilities f	or Stud	ents ((9pt)				
1	5	s will be able to	analyze issu		-				-				
2		s will be able to	-	•									
3		s will be able to		<u> </u>									
 4 5 		s will be able to s will be able to	-			-	-				nanner.		
6	a Student	s will be able to	show an attr	tude of	uying	to objective	ery evan		ie s abiii	ity.			
				I	Evalu	ation Crite	ria						
Criteria	Evalue and Ratio	ation Method	Exams	Quiz		Reports	Present	ations	Worl	ks Po	ortfolios	Others	Total
	Total Evaluation	Ratio	0	15	5	15	40)	0		30	0	100
Con	Ability to capture k	lowledge	0	5		5	5		0		10	0	25
aprehei Cr	Ability to think, reas	on and create	0	5		5	5		0		10	0	25
nsive S iteria	Collaboration and l	*	0	0		0	10)	0		0	0	10
ingti	Announcement / Expressio		0	5		5	20		0		0	0	30
4	Attitude and motiva		0	0		0	0		0		10	0	10

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation Methods and Important Points (10.5pt)					
	1						
	2						
Exams	3						
	4	-					
	5	-					
	6 ① ✓	There will be a quiz in week 4 / 8 / 14					
	3 ✓						
Quizzes	④ ✓						
	5 🗸						
	6						
	1 🗸	Report will include individual work report (the project progress and outcomes).					
	2 🗸	The format of the report will be announced by the instructors.					
Reports	3 🗸	Students must submit the final report at the end of the semester.					
Troporto	④ ✓						
	5 <						
	(<u>)</u>	There will be a presentation at the end of the semester. Students will give oral progress of their					
	① ✓ ② ✓	projects.					
	3 1	The format of the presentation will be announced by instructors, such as slides, poster, and/or					
Presentations	④ ✓	any other styles.					
	5 1						
	6						
	1						
	2						
Works	3						
	4						
	5	-					
	⑥① ✓	Students must submit weekly reports as the evidence of their projects.					
	2 1	the format of the portfolio will be announced by the instructors.					
	3 1						
Portfolios	④ ✓						
	5 🗸						
	6						
	1						
	2						
Others	3						
	4						
	5						
Specific Achieve	6 ment Cri	eria					
Descrip	tion of Id	eal Achievement (10.5pt) Description of Standard Achievement (10.5pt)					
Hands-On Engage group projects to a scenarios.	ement: Co apply the	mplete practical exercises and pretical concepts in real-world A solid foundation in critical thinking and problem- solving skills.					
Research and Exp	loration:	Undertake research activities, data the ability to innovate and think creatively in various situations.					
applications.		Effective communication skills, both in personal and					
Creative Thinking especially in envis	: Demon	strate creativity in projects, professional contexts. e future of AI. The capacity to collaborate with others, showing					
	nonnig til	flexibility and empathy.					

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
1 /	 Week 1 lesson 1: Introduction to Python What is Python? Overview and Applications Setting Up: Installing Python and IDEs Writing Your First Python Program 	Activity / Explanation / Report	Confirm the schedule and objectives. Making weekly report	60
2	 lesson 2: Python Basics Python Syntax and Variables Data Types and Operations Basic Input and Output 	Activity / Explanation / Report	Confirm the schedule and objectives. Making weekly report	60
3	Week 2 Lesson 3: Control Structures Conditional Statements (if, elif, else) Loop Constructs: for and while Loops Control Flow Tools: break, continue, pass	Activity / Explanation / Report		60
4	Lesson 4: Functions and Modules Defining and Using Functions Python Modules and Packages Namespaces and Scope	Activity / Explanation / Report		60
5	Week 3: Lesson 5	Activity / Explanation / Report		60
/	 Data Structures I Lists and List Operations Tuples and Sets Dictionaries and Their Applications 			
6	Lesson 6 Data Structures II	Activity / Explanation / Report		60
/	 Advanced List Comprehensions Stacks, Queues, and Heaps Implementing Data Structures: Linked Lists, Trees 			
7 /	Week 4: Lesson 7 String Manipulation Basic String Operations String Formatting and Methods Regular Expressions in Python	Activity / Explanation / Report	Quiz Report from lesson 1-3 Project review	60
8	 Lesson 8 File Handling Reading and Writing Files Working with Different File Formats (JSON, CSV) 	Activity / Explanation / Report	Quiz Report from lesson 1-3 Project review	60
	• File and Directory Management	Activity / Evaluation /		
9	 Week 5: Lesson 9: Object-Oriented Programming Introduction to OOP: Classes and Objects Inheritance and Polymorphism Special Methods (Magic Methods) 	Activity / Explanation / Report		60
10 /	 Lesson 10: Advanced Python Concepts Iterators and Generators Decorators and Context Managers Error and Exception Handling 	Activity / Explanation / Report		60

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
11 /	 Week 6 Lesson 11: Python for Web Development Web Scraping with Python Introduction to Web Frameworks (Flask/Django) Building a Basic Web Application 	Activity / Explanation / Report		60
12 /	Lesson 12: Working with Databases SQL Basics and SQLite Integrating Python with SQL Databases ORMs in Python (like SQLAlchemy)	Activity / Explanation / Report		60
13 /	 Week 7 Lesson 13: Python for Data Analysis Introduction to Pandas and NumPy Data Cleaning and Preparation Data Analysis and Visualization with Matplotlib and Seaborn 	Activity / Explanation / Report		60
14	 Lesson 14: Python for Data Science Introduction to Machine Learning with Python Simple Machine Learning Models Data Preprocessing and Analysis with Scikit-Learn 	Activity / Explanation / Report		60
15	 Week 8 Lesson 15: Advanced Data Science Topics Advanced Machine Learning Concepts Introduction to Neural Networks and TensorFlow Deep Learning Project 	Activity / Explanation / Report	Quiz Report from lesson 4-8 Project review	60
16 /	 Lesson 16: Python in Networking Basics of Network Programming Creating Network Applications Working with Network Protocols 	Activity / Explanation / Report	Quiz Report from lesson 4-8 Project review	60
17 /	 Week 9: Lesson 17: Python for System Administration Scripting for System Administration Automating System Maintenance Tasks Working with Operating System Services 	Activity / Explanation / Report		60
18	Lesson 18 Multithreading and Multiprocessing Introduction to Parallel Execution Multithreading in Python Multiprocessing and Concurrency	Activity / Explanation / Report		60
19 /	 Week 10 Lesson 19: Python in Cybersecurity Basics of Python in Cybersecurity Writing Scripts for Security Automation Ethical Hacking with Python 	Activity / Explanation / Report		60
20	 Lesson 20: Python in Finance Financial Analysis with Python Algorithmic Trading Strategies Risk Management Models 	Activity / Explanation / Report		60

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
21	 Week 11 Lesson 21: Advanced Web Development Advanced Flask/Django Features RESTful API Development with Python Full-Stack Python Web Development 	Activity / Explanation / Report		60
22	 Lesson 22: Python in Scientific Computing Scientific Computing with SciPy Working with Scientific Data Simulation and Modeling in Python 	Activity / Explanation / Report		60
23	 Week 12: Lesson 23: Python for Graphic Design and Multimedia Creating Graphics with Python Working with Images and Multimedia Building Interactive Applications 	Activity / Explanation / Report		60
24	Lesson 24: Advanced Topics in Data Science • Time Series Analysis with Python • Natural Language Processing (NLP) • Advanced Deep Learning Projects	Activity / Explanation / Report		60
25	Week 13: Lesson 25: Python for IoT Introduction to IoT with Python Building IoT Devices with Raspberry Pi/Arduino and Python	Activity / Explanation / Report		60
26	 Lesson 26: Cloud Computing with Python Introduction to Cloud Computing Integrating Python with AWS/Azure/GCP Building and Deploying Python Applications in the Cloud 	Activity / Explanation / Report		60
27	 Week 14: Lesson 27: Python for Game Development Game Development Basics with Pygame Designing and Creating a Simple Game Advanced Game Mechanics and Features 	Activity / Explanation / Report	Report from lesson 4-8 Hand in Project Prepare for the presentation and the report	60
28 /	 Lesson 28: Python and Blockchain Understanding Blockchain Fundamentals Implementing Blockchain with Python Building a Simple Cryptocurrency 	Activity / Explanation / Report	Report from lesson 4-8 Hand in Project Prepare for the presentation and the report	60
29 /	Week 15 Lesson 29: Project Presentation	Presentation	Presentation	60
30	Lesson 30: Project Presentation	Presentation	Presentation	60

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	Field		Course N	lame		Credits	Сог	irse	emester	ructor with company experien Class Style				
Dept. S	S									Lectu	180			
Special	lized	Infor	mation Mat	hematic	es III	2	550	300	First	Tota				
Info. R	Required									104	a1			
Target Grade		Instructor			Office		E-ma	il Address		Office I	Hours			
5		FUJISHIMA, Sa	atoshi	К	Kanazawa C 31.116					Thu. 16.30) - 17.30			
				Co	ourse Object	ives								
	Kevw	ords (10.5pt)			<u> </u>		rning (Objectives	(10.5pt)					
1	Scientific C		N	Aachine	e learning als		-			ues in data	science			
	Numerical A			Machine learning algorithms are very important techniques in data science and data mining, and it is necessary to use different algorithms according to the purpose and build an appropriate machine learning model. In this course,										
		•												
	Machine Le	e			will learn ty				hine learnin	ig through h	nand			
4	Classificatio	on	c	alculation	on and impl	ementati	on in l	Python.						
5	Regression													
		Co	urse Descrip	ption an	d Expectatio	ons for St	tudents	s (10.5pt)						
		vide total-time cr mes for 15 50-mi			e study times	s are woi	rth one	e credit, ai	nd students	need to hav	e 30 50-			
machine Students impleme Advice - Have l - Be sur	e learning te ts will gain tentation in F on taking th laptop ready	is course: before class ever sufficiently for c	s linear reg standing of y time.	ression 7 machi	analysis, k- ine learning	NN, Nai technic	ive Ba Jues th	yes, decis	sion tree, an	nd neural ne	etwork etc			
Textbo Refere	ooks: ence books:	(textbooks, refere	ence books,	reserve	ed books) (10).5pt)								
Textbo Refere	ooks:	· · ·				• *		itas) (10.5	(at)					
Textbo Refere Reserv Basic ki	ooks: ence books: ved books: nowledge of	· · ·	/Skills Neec	ded to T	Sake This Cog.	urse (Pre								
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Textbo Refere Reserv Basic ki Basic ki	Program Objectives	Knowledge computers and P mathematics, pro	/Skills Neec ython progr obability, an	ded to T amming ad statist Tar	Sake This Co g. tics from Inf rget Abilities	urse (Preformation	n Matl	hematics I Ppt)	and II.		f them			
Textbo Refere Reserv Basic ki Basic ki No.	Program Objectives a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to	/Skills Neec ython progr obability, an understand b	ded to T amming d statist Tar asics of s	Cake This Co g. tics from Inf get Abilities scientific calcu	urse (Pre formation for Stud	n Matl	hematics I Ppt)	and II.	is using any o	f them.			
Textbo Refere Reserv Basic kr Basic kr No. 1 2	Program Objectives a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to	/Skills Neec ython progr bability, an understand ba explain flow	ded to T amming d statist Tar asics of s of machi	^b ake This Co g. tics from Inf get Abilities scientific calcu ine learning p	urse (Pre formation for Stud	n Math lents (9 thods a	hematics I Ppt) nd write sin	and II.		f them.			
Textbo Refere Reserv Basic kr Basic kr No. 1 2 3	Program Objectives a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to dents will be able to	/Skills Neec ython progr ybability, an understand ba explain flow understand ba	ded to T amming d statist Tar asics of s of machi asics of c	Sake This Co g. tics from Inf get Abilities scientific calcu ine learning pr classification 1	urse (Pre formation for Stud ilation me rocess. nethods a	n Math lents (9 thods a nd writ	hematics I Opt) and write sin	and II.	any of them.	f them.			
Textbo Refere Reserv Basic ki Basic ki No. 10 22 33 4	Program Objectives a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand be explain flow understand be	ded to T amming d statist Tar asics of s of machi asics of 1	Cake This Co g. tics from Inf rget Abilities scientific calcu ine learning pr classification r linear regressio	urse (Pre formation for Stud ilation me rocess. nethods a on and wr	n Math lents (9 thods a nd writt ite simp	hematics I Ppt) and write sin e simple program	and II.	any of them.	f them.			
Textbo Refere Reserv Basic kr Basic kr Dasic kr	Program Objectives a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand be explain flow understand be	ded to T amming d statist Tar asics of s of machi asics of 1	Cake This Co g. tics from Inf rget Abilities scientific calcu ine learning pr classification r linear regressio	urse (Pre formation for Stud ilation me rocess. nethods a on and wr	n Math lents (9 thods a nd writt ite simp	hematics I Ppt) and write sin e simple program	and II.	any of them.	f them.			
Textbo Refere Reserv Basic ki Basic ki No. 10 22 33 4	Program Objectives a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand be explain flow understand be	ded to T amming d statist Tar asics of s of machi asics of 1	Cake This Co g. tics from Inf rget Abilities scientific calcu ine learning pr classification r linear regressio	urse (Pre formation for Stud ilation me rocess. nethods a on and wr	n Math lents (9 thods a nd writt ite simp	hematics I Ppt) and write sin e simple program	and II.	any of them.	f them.			
Textbo Refere Reserv Basic kr Basic kr Dasic kr	Program Objectives a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand ba explain flow understand ba	ded to T amming d statist asics of s of machi asics of c asics of 1 ropriate r	Cake This Co g. tics from Inf rget Abilities scientific calcu ine learning pr classification r linear regressio	urse (Pre formation for Stud plation me rocess. nethods an on and wr ing algorit	n Math lents (9 thods a nd writt ite simp	hematics I Ppt) and write sin e simple program	and II.	any of them.	f them.			
No. 1 2 3 4 5 6	Program Objectives a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro dents will be able to dents will be able to dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand ba explain flow understand ba	ded to T amming d statist asics of s of machi asics of c asics of 1 ropriate r	Cake This Co g. tics from Inf get Abilities scientific calcu ine learning pr classification r linear regression machine learn valuation Cri	urse (Pre formation for Stud nlation me rocess. nethods a on and wr ing algorit teria	n Matl lents (9 thods a nd writt ite simp hms fo	hematics I Ppt) and write sin e simple program	and II.	any of them.	f them.			
No. ① ② ③ ④ ⑤ ⑥	Program Objectives a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro- dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand be explain flow understand be consider app	ded to T amming d statist d statist Tar asics of s of machi asics of c asics of 1 ropriate r Ev	Cake This Co g. tics from Inf get Abilities scientific calcu ine learning pr classification r linear regression machine learn valuation Cri	urse (Pre formation for Stud nlation me rocess. nethods a on and wr ing algorit teria	n Math lents (9 thods a nd writt ite simp hms fo ations	hematics I Ppt) and write sin e simple pro- ple program r each actua	and II.	any of them.				
Textbo Refere Reserv Basic ki Basic ki	Program Objectives a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro- dents will be able to dents will be able to	/Skills Neec ython progr ybability, an understand be explain flow understand be consider appr Exams 0	ded to T amming d statist Tar asics of s of machi asics of c asics of 1 ropriate r Ev Quizze 0	Sake This Cog. g. tics from Inf rget Abilities scientific calcuine ine learning price classification in linear regression waluation Critices Reports 30	urse (Pre formation for Stud ilation me rocess. nethods an on and wr ing algorit teria s Present	n Matl lents (9 thods a ind write ite simp thms fo	hematics I Ppt) and write sin e simple pro- ple program r each actua Works 70	and II. pple program pgrams using using any o al problem. Portfolios 0	any of them. f them. Others	Total 100			
Textbo Refere Reserv Basic ki Basic ki	Program Objectives a,h,i Stu a,h,i Stu	Knowledge computers and P mathematics, pro- dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand ba explain flow understand ba consider appr Exams 0 0	ded to T amming d statist d statist Tar asics of s of machi asics of 1 ropriate 1 Ev Quizze 0 0	Sake This Cog. g. tics from Inf rget Abilities scientific calcuine learning processification regression machine learn valuation Crime es Reports 30 10	urse (Pre for mation for Stud ilation me rocess. nethods and wr ing algorit teria g Present 0 0	n Matlents (9 thods a nd writt ite simp hms fo	hematics I Ppt) and write sin e simple pro- ple program r each actua Works 70 25	and II. and II. angle program ograms using is using any o al problem. Portfolios 0 0 0	any of them. of them. Others 0 0 0	Total 100 35			
Textbo Refere Reserv Basic kr Basic kr Basic kr Criteria	Program Objectives a,h,i Stu a,h,i S	Knowledge computers and P mathematics, pro- mathematics, pro- dents will be able to dents will be able to dents will be able to dents will be able to dents will be able to dents will be able to dent	/Skills Need ython progr bability, an understand b explain flow understand b consider appr Exams 0 0 0	ded to T ramming id statist asics of s of machi asics of 1 ropriate r Ev Quizze 0 0 0	'ake This Cog. g. tics from Inf 'get Abilities scientific calcuine ine learning processification in classification in tinear regression waluation Crives Reports 30 10 10	urse (Pre for mation for Stud ilation me rocess. nethods an on and wr ing algorit teria present 0 0 0 0	n Mathematical Action of the second s	hematics I Opt) and write sin e simple program r each actua Works 70 25 30	and II. nple program ograms using s using any o al problem. Portfolios 0 0 0 0 0 0 0 0 0 0 0 0 0	any of them. f them. Others 0 0 0 0	Total 100 35 40			
Textbo Refere Reserv Basic kr Basic kr Basic kr Criteria	Program Objectives a,h,i Stu a,h,i S	Knowledge computers and P mathematics, pro- dents will be able to dents will be able to	/Skills Neec ython progr obability, an understand ba explain flow understand ba consider appr Exams 0 0	ded to T amming d statist d statist Tar asics of s of machi asics of 1 ropriate 1 Ev Quizze 0 0	Sake This Cog. g. tics from Inf rget Abilities scientific calcuine learning processification regression machine learn valuation Crime es Reports 30 10	urse (Pre for mation for Stud ilation me rocess. nethods and wr ing algorit teria g Present 0 0	n Mathematical Action of the second s	hematics I Ppt) and write sin e simple pro- ple program r each actua Works 70 25	and II. and II. angle program ograms using is using any o al problem. Portfolios 0 0 0	any of them. of them. Others 0 0 0	Total 100 35			
Textbo Refere Reserv Basic ki Basic ki Basic ki Criteria	Program Objectives a,h,i Stu a,h,i S	Knowledge computers and P mathematics, pro- mathematics, pro- dents will be able to dents will be able to dents will be able to dents will be able to dents will be able to dents will be able to dent	/Skills Need ython progr bability, an understand b explain flow understand b consider appr Exams 0 0 0	ded to T ramming id statist asics of s of machi asics of 1 ropriate r Ev Quizze 0 0 0	'ake This Cog. g. tics from Inf 'get Abilities scientific calcuine ine learning processification in classification in tinear regression waluation Crives Reports 30 10 10	urse (Pre for mation for Stud ilation me rocess. nethods an on and wr ing algorit teria present 0 0 0 0	n Matlents (9 thods a nd write ite simp hms fo	hematics I Opt) and write sin e simple program r each actua Works 70 25 30	and II. nple program ograms using s using any o al problem. Portfolios 0 0 0 0 0 0 0 0 0 0 0 0 0	any of them. f them. Others 0 0 0 0	Total 100 35 40			

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Targ Abil	get lity	Evaluation Methods and Important Points (10.5pt)	
	1			
	2			
Exams	3			
L'Adhis	4			
	5			
	6			
	1			
	2			
Quizzes	3			
Quilles	4			
	5			
	6			
	1		Reports are worksheet exercises and written assignments for final project.	
	2		The reports should be submitted by the due date designated by the instructors.	
Reports	3	レ	-	
-	4	V	-	
	5	V	-	
	6			
	1		-	
	2		-	
Presentations	3 ④		-	
	(4)			
	6		-	
	1	V	Works are programming exercises assigned during class.	
	2		The Python source code should be submitted by the due date designated by the instructors	•
_	3	V		
Works	(4)	V		
	5	V		
	6			
	1			
	2			
	3			
Portfolios	4			
	5			
	6			
	1			
	2			
Others	3			
Oulers	4			
	5			
	6	<u>a :</u> ,	· · · · · · · · · · · · · · · · · · ·	
Specific Achieve			eria eal Achievement (10.5pt) Description of Standard Achievement (10.5pt)	
			and machine learning techniques Students are able to understand and explain simple flow	of
			gorithm of them according to machine learning process.	
their purpose.				
Students are able f	. im-	lom	Students will be able to consider appropriate machine	
			ent a program to build a machine learning algorithms for each actual problem. lysis (data mining).	
	Latu		Students are able to explain the simple flow of data	
			processing or classification.	

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1 /	Guidance, Python Programming Environment, Machine Learning Outline	Lecture	Read the given lecture slides.	200
2 /	Regression Analysis (1) Students will learn about simple regression analysis by manual calculation and Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
3 /	Regression Analysis (2) Students will learn about simple regression analysis by manual calculation and Python	Exercise	Read the given lecture slides and proceed with exercises.	200
4	coding. Regression Analysis (3) Students will learn about Python coding for simple regression analysis.	Exercise	Read the given lecture slides and proceed with exercises.	200
5	k-Nearest Neighbor (1) Students will learn about k-NN by manual calculation and Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
6	k-Nearest Neighbor (2) Students will learn about k-NN by manual calculation and Python coding.	Exercise	Read the given lecture slides and proceed with exercises.	200
7 /	k-Nearest Neighbor (3) Scaling Students will learn about Scaling methods and applying them to the k-NN with Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
8	Naive Bayes (1) Students will learn about Naive Bayes by hand calculation and Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
9	Naive Bayes (2) Students will learn about Naive Bayes by hand calculation and Python coding.	Exercise	Read the given lecture slides and proceed with exercises.	200
10	Naive Bayes (3) Students will learn about Naive Bayes with Python coding.	Exercise	Read the given lecture slides and proceed with exercises.	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
	Decision Tree (1) Students will learn about Decision Tree by hand calculation and Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
12	Decision Tree (2) Students will learn about outline of deep learning and coding style.	Exercise	Read the given lecture slides and proceed with exercises.	200
/	Cross Validation Students will learn about Cross Validation and Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
/	Correctness (1) Students will learn about Correctness of models and Python coding.	Lecture and Exercise	Read the given lecture slides and proceed with exercises.	200
/	Correctness (2) Students will learn about Correctness of models and Python coding.	Exercise	Read the given lecture slides and proceed with exercises.	200

Grade Instructor Order P-mail Address Other forus 5 * FUJISAWA, Takeshi Kanazawa C 31:104 Fri. 15:30 – 17:30 Course Objectives Learning Objectives Keywords Intoday's advanced information society, the amount of data handled by information processing systems is enormous, and the growth of data volume is accelerating. The need for data scients is is increasing every year. This course provides an overview of databases, mainly relational databases, and how to write and operate SQL. 5 Transaction Course Description and Expectations for Students Note: Fourise Students for Students Note: Solution of students in the solution of students in the solution of the courtee of the courtee of the courtee of the course. In the curriculum, this course alms to outlyicate the ability to develop software development skill usarig databases. In the curriculum, this course alms to outlyicate the ability to develop software development skill usarig databases. The curriculum, this course alms to outlyicate the ability to develop software development with gatabases. The curriculum, this course alms to outlyicate the ability to develop software development with the curriculum, this course alms to outlyicate the ability to develop software development with gatabase. The curriculum, this course alms to outlyicate the ability to develop software development with gatabase. Subjects Reservemence: Reserve the outhabase development at major information companies and I						20.	24 Sy	llabus		In	structor w	th "*"means an	instruc	ctor with compar	v experience
Specialized Database 2 550800 First Lecture Total Info. Required * Practical Instructor Office E-mail Address Office Hours 5 * FUJISAWA, Takeshi Kanazuwa C 31:104 Fri. 15:30 – 17:30 Fri. 15:30 – 17:30 Course Objectives Learning Objectives Keywords Learning Objectives SQL In today's advanced information society, the amount of data handled by information processing systems is enormous, and the growth of data volume succlearating. The need for data scientists is increasing every year. This course provides an overview of databases, mainly relational databases, and how to write and operate SQL. 5 Transaction Course Description and Expectations for Students Note of the courteent of the course. In the curriculum, this course aints or databases. Sustems will be given to mprove students' understanding and grasp of the content of the course. In the curriculum, this course aints or cultivate the ability to develop software essing databases, and students should take this course with the mastery of SQL as a programming language in mind. Relearing Marrials (exthrocks, reference to Class subjects Foury the database database management systems, focusing on relational database. Software essing databases, in software development at major information companies and Tr-related netract venture companies will practice database design and databa		Field			Cours	se Nam	e	(Credits	Co	urse			•	· •
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Evaluation Method		get lity	Evalu	ation Methods and Important Points
	1	V	Check whether the students have	acquired basic knowledge and skills about each unit they have
	2	レ	studied.	
	3	レ		
Exams	4	V	•	
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	6			
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	2			
Quizzes	3		-	
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Reports	4			
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	3		-	
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	6		Students will encete a nue crome to	amounts a database and evaluate their understanding of
	1		database utilization.	operate a database and evaluate their understanding of
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Works	3		-	
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Portfolios	3			
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	6			
	1	V	An assignment will be given to su	apport self-study, and its validity will be assessed as the result
	2	レ	of self-study done 30 times in 50	minutes.
	3	V		
Others	4	V		
	5	V		
	6	-		
Specific Achieve		Crite	eria	
			al Achievement (10.5pt)	Description of Standard Achievement (10.5pt)
In addition to the	standa	ard a	chievement levels, the student	(1) Can explain what a relational data model is.
should be able to (5) Can write com	nlev	IOZ	statements, including joins and	(2) Can write SQL for a given relational algebra.
subqueries	piex	JVL	statements, meruding joins and	(3) Represent the real world using the entity-relationship
(6) Ĉan design a d	lataba	se th	at is correctly implemented up to	model, and translate the representation into a relational database schema.
the third normalize			anipulate databases.	(4) Explain in detail the normalization procedure
, , can write prog	,	.5 11	Punte annouses.	· · · ································

Class No. Date	Class Content	Method	Assignments (Preview and Review)	Time (Minutes)
1 /	What is a database? Able to explain why a database is necessary.	Lecture	Read textbook and Assignment	200
2	What is a relational database? Able to explain what relational database is.	Lecture	Read textbook and Assignment	200
3	Relational Algebra Able to perform relational algebra operations.	Lecture	Read textbook and Assignment	200
4	Let's design a database Able to draw E-R model diagrams. Able to normalize non-normal form data to first normal	Lecture	Read textbook and Assignment	200
5	form. 2 nd Normal Form Able to normalize 1 st normal form to 2 nd one	Lecture	Read textbook and Assignment	200
6	3 rd Normal Form Able to normalize 2 nd normal form to 3 rd one	Lecture Quiz	Read textbook and Assignment	200
7	SQL ^①	Lecture	Read textbook and Assignment	200
/	Able to make basic select SQL statement Able to create tables Able to insert , update or delete data rows	Lecture		
8	SQL ² Able to group data and extract data by using complex extraction conditions of SQL.		Read textbook and Assignment	200
9 /	SQL ³ Able to make complex SQL statement and	Lecture	Read textbook and Assignment	200
10	join tables SQL ④	Lecture Quiz	Read textbook and Assignment	200
/	Able to make SQL with subquery			

Class No. Date	Class Content	Method	Assignments (Preview and Review)	Time (Minutes)
11 /	Let's operate a database / Transaction. Able to explain ACID and why deadlock happens. Able to perform SQL operations using transactions.	Lecture	Read textbook and Assignment	200
12	DB programming ① Create a program to perform CRUD operations.	Lecture Self-Study	Read textbook and programming	200
13	DB programming ② Create a program to perform CRUD operations	Lecture Self-Study	Assignment of DB programming	200
14	DB programming ③ Create a program to perform CRUD operations	Lecture Self-Study	Assignment of DB programming	200
15	Wrap up Submit an assignment Review of what you have learned so far	Lecture Self-Study	Assignment of DB programming	200
16 /	Final exam			
17 /	Review of final exam results Self-check			

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1	Software Engin	eering								ed disciplin			
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3	Rendering									ering technic ecessary tea			
4	Software Frame	works								sibilities thr			
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	arse will provide self-study times				ute stu	dy times	are wo	orth or	e credi	t, and stude	nts n	need to hav	e 30 50-
Students will have an opportunity to practice the software engineering techniques they learned in previous years and apply them to the domain of computer graphics. The course begins with teaching the basics of computer graphics through hands-on exercises that build a computer graphics framework with Python and OpenGL. The students will then use their computer graphics frameworks to create a software application in a team development project. The class contents rely heavily on reading contents assigned every week, so it is important to check the weekly reading assignments . The teacher may consider your assignments late if you are disruptive or do not participate in class activities.													
NOTE : The textbook below is available for free at taylorfrancis.com and will also be available on the course home page. Required Materials (textbooks, reference books, reserved books) (10.5pt)													
Textbo Referen	oks: "Developin nce books: None ed books: None	g Graphics F						' (CRC	C Press)) ISBN 978-	-1-00)3-18137-8	3
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* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Targe Ability		Evaluation Methods and Important Points (10.5pt)						
	1								
	2								
Exams	3								
Exams	4								
	5								
	6								
			There are two quizzes during the semester. Quizzes are short tests with simple answer type						
	2		questions such as multiple-choice and fill-in-the-blanks. They allow the students to confirm their comprehension of recently covered content.						
Quizzes	3		then comprehension of recently covered content.						
	4								
	5								
	6								
			Reports are general assignments including handouts, written reports, and documents created during various in-class activities. Reports will be evaluated based on the accuracy of student						
	2		responses in most cases; otherwise, they will be evaluated based on the accuracy of student						
Reports	0	~	students put into their creation. In general, if a student submits one of these assignments late,						
	 ④ ⑤ 		they will lose 20% of its maximum value towards their grade.						
	6								
	1								
	2								
	3								
Presentations	4								
	5								
	6								
	1	V	Works are programming exercises assigned during class from the textbook or from the teacher.						
	2		They give students a chance to apply what they learned to making a small program with an						
Works	3		xplicit purpose. In general, if a student submits one of these assignments late, they will lose 00% of its maximum value towards their grade .						
WOIKS	4		20 /0 of its maximum value towards then grade.						
	5								
	6								
	1		The team development project at the end of the semester will count towards student portfolios.						
	2		It will be graded based on completeness and demonstrated skill of its outcomes, including documents related to planning and managing the project.						
Portfolios		~	documents related to plaining and managing the project.						
		レ ,							
		レレ							
		V							
	1								
	3								
Others	4								
	5								
	6								
Specific Achieve	ment C								
0			al Achievement (10.5pt) Description of Standard Achievement (10.5pt)						
			Imputer graphics pipelineImputer graphics pipelineterms of matrices and vectorsImputer graphics pipelineImputer graphics pipelin						
			omputer graphics framework (3) Apply functions to produce elements of a 3D scene						
			g to a development project (4) Explain techniques used in a development project						
5 Plan the necess	ary step	s fo	r completing a project (5) Follow the necessary steps for completing a project						
(6) Write code with	that is easy to read and maintain (6) Explain a program with comments in the source code								

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
1 /	1 1	Lecture Discussion Exercises	The teacher will announce assignments in class.	200
2 /	11 5	Lecture Discussion Exercises	The teacher will announce assignments in class.	200
	1	Lecture Discussion Exercises	The teacher will announce assignments in class.	200
/		Lecture Discussion Exercises	The teacher will announce assignments in class.	200
5		Lecture Discussion Exercises	The teacher will announce assignments in class.	200
6 /		Lecture Discussion Exercises	The teacher will announce assignments in class.	200
/	Create a Matrix class and use it to demonstrate translation and rotation transformations.	Lecture Discussion Exercises Quiz	The teacher will announce assignments in class.	200
/		Lecture Discussion Exercises	The teacher will announce assignments in class.	200
/	3D Scenes with Geometry and Material Objects Create classes to represent geometric shapes and their rendering properties, then render a 3D scene by putting together the pieces of the scene graph framework.	Discussion	The teacher will announce assignments in class.	200
10	Polygons, Planes, Spheres, and Cylinders	Lecture Discussion Exercises	The teacher will announce assignments in class.	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
/	Team Development Project (1) Choose a project theme as a team and plan its development.	Team Project	The teacher will announce assignments in class.	200
/	Team Development Project (2) Follow through on the team plan and execute the development.	Team Project	The teacher will announce assignments in class.	200
/	Team Development Project (3) Follow through on the team plan and execute the development.	Team Project	The teacher will announce assignments in class.	200
/	Team Development Project (4) Follow through on the team plan and execute the development.	Team Project	The teacher will announce assignments in class.	200
/	Team Development Project (5) Follow through on the team plan and execute the development.	Team Project	The teacher will announce assignments in class.	200

				20	24 S	yllabus						
	T' 11		a b	Ţ					r with "*"m urse	eans an instructor v		
	Field		Course 1	Name			Credits		ode	Semester	Class	Style
Dept. S Special Info. El	ized		Media Info	ormatic	s		2	551	300	First	Lect Tot	
Target Grade		Instructor			0	office		E-ma	ail Addre	ess	Office	Hours
5		OHTSUKA, Sal	kuichi			nazawa C: -312				Ν	Iake an app clas	
				(e Objecti	ves					
	Keywo	ords (10.5pt)			00415	e objecti		rning	Objectiv	ves (10.5pt)		
2 H 3 0 4 H	Media Informa Human Interfa Computer Perception (V Cognitive bias	ce (HI) isual and audito	ry)	human informa media j abilitie	interf ation produ s to p	faces, and in compu- ction bas	l cognit iter syst ed on l iulti-me	tive bi tems, ogical edia co	ases, (2) and (3) 1 persuas	auditory- and) recording an nethods for u ion, resulting nd to judge t	nd processin ser-oriented that they w	ng of media d effective vill acquire
		Co	ourse Descr	iption a	and Ez	xpectation	ns for S	tuden	ts (10.5p	t)		
applied to real world activities. In this course, students learn basics of (1) auditory- and visual-perceptions, human interfaces, and cognitive biases, (2) recording and processing of media information in computer systems, and (3) methods for user- oriented effective media production based on logical persuasion. As a result, they will acquire abilities to produce basic multi-media contents and to judge the relationship between human- and media- information. < Expectations for Students > Total ability, combined with many kinds of basic knowledge, is required for learning this course. Therefore, students need to review their basic skills: e.g., composition in native language, physics (sound and light), and mathematics (esp. index, logarithm, binary, and hexadecimal). Required Materials (textbooks, reference books, reserved books) (10.5pt) Textbooks: R. Gregory, Eye and Brain: The Psychology of Seeing (Princeton Univ. Press), ISBN: 978-0-691-16516-5 Reference books: 松本 輝彦, 5 段落エッセイ指導で日本の子どもが変わる!(リーブル出版), ISBN: 978-4-86338-115-5 Reserved books:												
			lge/Skills N	leeded	to Tal	ke This C	ourse (Prerec	uisites)	(10.5pt)		
As writ	ten in "Expec	tations for Stud	lents".		T		- (C	. 1 4				
	Objectives		C N	1 .	-	et Abilitie					1	
1		c comprehension of comp			-	_			-		media-handl	ing.
2		ble to create new v			•	0	5				amic disciplin	00
(3) (4)	f Havi	ng organized one's	-	-		-	-			-	-	
5		ions of others.	of identity w	hile pos	sessing	y a fundam	ental un	derstar	ding of v	arious cultures	and value svs	tems.
6	•	sound learning as	-	-	-				-			
-	1					ation Crite			1 0			
Criteria a	Evand Ratio	aluation Method	Exams	Quiz		Reports		tations	Works	Portfolios	Others	Total
	Total Evaluati	on Ratio	0	0		50	4	0	0	0	10	100
C	Ability to cap	oture knowledge	0	0		20	1	0	0	0	0	30
ompret	Ability to think	, reason and create	0	0		10	1	0	0	0	0	20
hensive Criteri		and leadership	0	0		5	:	5	0	0	0	10
Comprehensive Strengt Criteria	Announcement / Exp	nt/Expression/Communication 0 0 10 10 0						0	0	20		
gt	Attitude and mos	ination for loom in -						-				

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

ength

Attitude and motivation for learning

Evaluation Method	Targ Abil	get lity	Evaluation Methods and Important Points (10.5pt)
	1	.,	
	2		
Exams	3		
Exams	4		
	5		
	6		
	1		
	2		
Quizzes	3		
	4		
	5		
	6 1		
	2		
	3		Students need to comprehend the course contents clearly and summarize their own idea
Reports	4		logically with concrete example(s).
	5		
	6	V	
	1	V	
	2	· V	
	3		Students will present the results of group-discussions on specific topics decided by each group
Presentations	4	V	based on course contents.
	5	V	
	6	V	
	1		
	2		
W. a. I. a	3		
Works	4		
	5		
	6		
	1		
	2		
Portfolios	3		
	4		
	5		
	6 1		
	2		
	3	V	Students need to make active discussions during group works and to make questions in the
Others	(4)		course if they feel their comprehension would be insufficient.
	5	V	
	6		

Specific Achievement Criteria

Specific / Keine veinent Criteria	
Description of Ideal Achievement (10.5pt)	Description of Standard Achievement (10.5pt)
Students can clearly explain (1) the basics of recording and	Students will comprehend (1) the basics of recording and
processing of media information, e.g., characters, sounds,	processing of media information, e.g., characters, sounds,
images, and movies, in computer systems and (2) relationship	images, and movies, in computer systems and (2) relationship
between auditory- and visual-perceptions and media	between auditory- and visual-perceptions and media
information.	information.
Combining the new knowledge acquired in this course to the	They will be able to comprehend relationships between the new
previous experiences of media creation during other courses,	knowledge acquired in this course and the previous experiences
they will be able to create more sophisticated media arts.	of media creation during other courses.

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
1 /	Orientation (1): understanding (a) the difference in criteria between physical world including engineering and psychological world (auditory- and visual-perception and cognition, and (b) difference in the meanings of "information" between in Japan and in general countries.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	100
2 /	Orientation (2): learning the standard methods of communication in the world, i.e., outside of Japan, e.g., (a) top-down thinking processes and (b) paragraph writing.	Lecture & Active Learning	Reviewing orientation and making report and previewing of next class outline.	200
3 /	Light and sound in physical world.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
4	Comparison of auditory- and visually-sensing: differences between in case of human and other animals.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
5	Utilizing index and logarithm in human auditory- and visually-sensing.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
6 /	Relationship between "perception and cognition" and the meanings of information processing in human brain, i.e., "intuition and logical information".	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
7 /	Introduction to vision: what's eye.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
8 /	Visual information processing in human brain (1): decomposition and analysis of acquired information.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
9 /	Visual information processing in human brain (2): integration of fragmented information and reconstruction of percepts.	Lecture & Active Learning	Reviewing and summarizing of this class and previewing of next class outline.	200
10 /	Fundamentals of visual perception: brightness, color, motion, and depth.	Lecture & Active Learning	Reviewing first half of the classes and making intermediate report and previewing of next class outline.	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
	Basics of information processing in computer and digital representation of characters.		Reviewing and summarizing of this class and previewing of next class outline.	200
	Basics of digital encoding methods of sound and improvement methods of its encoding efficiency.		Reviewing and summarizing of this class and previewing of next class outline.	200
	Basics of digital encoding methods of image and video and improvement methods of their encoding efficiency.		Reviewing and summarizing of this class and previewing of next class outline.	200
14 /	Group discussions on specific topics decided by each group.		Finishing group-work and preparing presentation.	200
	Presentations by each group and supplemental remarks.		Reviewing all the classes and making final report.	300

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	Field		Course Name		Credits	Cou Co	irse S	emester	Class S	Style
Dept. S Specia Info. E			Operating Syste	em	2	5512	200	Second	Lectu Tota	
Target Grade		Instructor		Office		E-mail Address			Office I	Hours
5		FUJISAWA, Ta	keshi	Kanazawa 31.104	C				Friday 16:3	30-17:30
				Course Obje	ctives					
	K	eywords					ing Objec			
1 2 3 4 5	UNIX Process Mar File System Shell System Call	•	system comp is bla the O	ating system (n. OS provid- uter. Nowada ck boxed. In t S, such as pro nd obtain bas	es an effic ys, OS is his course cess mana	ient in familia , stude agemen	terface for ar to com- ents will nt, memo	or various p puter users, earn about ry manager	rograms to r however, th the basic fun nent, file ma	run on the ne structu nctions of anagemer
			Course Descrip	otion and Exp	ctations f	or Stuc	dents			
echnol operations . Over	logies necess ng system an	c components of ary to realize an o d how to use ther rating Systems tent	operating system	. In this cour	e, student	s will	learn abo	understandi out the basic	ng of the ele component	ements ar is of an
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* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Tar Abi	get lity	Evalua	tion Methods and Important Points
	1	V	Check how much of basic know	rledge and skills the students have acquired over the whole
	2	レ	classes.	
Exams	3	レ		
	4	レ		
	5	レ		
	6			
	1			
	2			
Quizzes	3			
Quizzes	4			
	5			
	6			
	1			
	2			
Reports	3			
Reports	4			
	5			
	6			
	1			
	2			
Presentations	3			
resentations	4			
	5			
	6			
	1			through the task of deciphering the source code of programs
	2		written in C. Students will deepen their unders	tanding of the functions provided by the operating system
Works	3		through system call programming	
W OIK5	4			in the C hanguage.
	5	レ		
	6			
	1			
	2			
Portfolios	3			
1 official of	4			
	5			
	6			
	1	レ		pport self-study, and its validity will be assessed as the resul
	2	レ	of self-study done 30 times in 50 r	ninutes.
Others	3	レ		
C LIVIO	4	レ		
	5			
	6		l <u>.</u>	
Specific Achieve			ria Eldeal Achievement	Description of Standard Achievement

Description of Ideal Achievement	Description of Standard Achievement
	Explain the concepts and structure of the operating system, including processes and file systems.

Class No. Date	Class Content	Method	Assignments (Preview and Review)	Time (Minutes
1	How an Operating System Works UNIX for Beginners	Lecture	Research about OS in advance	200
/	Getting startied			
	Files and common commands			
2	The File System (1)	Lecture Exercises	Read handout and Assignment	200
/	The basis of files			
3	The File System (2)	Lecture Exercises	Read handout and Assignment	200
/	Directories and filenames Permissions		Assignment	
4	Standard input/output and process what is redirect and pipe ?	Lecture Exercises	Read handout and Assignment	200
/	what is process ?			
5	Basic commands (1)	Lecture Exercises	Read handout and Assignment	200
/				
6	Basic commands (2)	Lecture Exercises	Read handout and Assignment	200
/		LACICISCS	Assignment	
7	Basic commands (3)	Lecture	Read handout and	200
/		Exercises	Assignment	
8	Using the Shell (1)	Lecture	Read handout and	200
/	Creating new commands Command arguments and parameters	Exercises	Assignment	
9	Using the Shell (2)	Lecture Exercises	Read handout and Assignment	200
/	Program output as arguments Shell variables Looping in shell programs		rissignment	
10	C language	Lecture Exercises	Complete the assignment	200
/	Tutorial of C language			

Class No. Date	Class Content	Method	Assignments (Preview and Review)	Time (Minutes)
11 /	System Call Programming (1) Process	Lecture Exercises	Complete the assignment	200
12	System Call Programming (2) File input / output File System	Lecture Exercises	Complete the assignment	200
13	System Call Programming (3) Networking	Lecture Exercises	Complete the assignment	200
14	System Call Programming (4) Comprehensive Assignment	Lecture Self-Study	Complete the assignment	200
15	Wrap up Submit an assignment Review of what you have learned so far	Lecture Self-Study	Complete and submit the assignment	200
16	Final Exam			
17	Review of final exam results Self-check			

							In	structor with			
	Field Course					Credits	Co	urse	Semester	Class S	
-	pt. S ecialized Network Sy p. Elective				ab	2	551	400	Second	Exerc Tot	
Target Grade		Instructor			Office	E-mail Address			Office I	Hours	
5	MUKAI,	Hiroaki / SAKA	MOTO, SI	hinji	21.4					Monday 17:	05 - 18:45
				С	Course Object	ives					
	Keywo	rds (10.5pt)							es (10.5pt)		
1 2 3 4	Computer ne Protocols OSI referenc TCP/IP		s t	supporti technolo understa	urse introduc ing the curren ogies to stude anding of cor lated to netw	nt Interne ents takir nputer ne	et, and ng this etwor	d imparts s course. ks such a	s various rela Through the	ated communities, students v	nication vill gain an
5	Internet	0.		•	117		1 1	. (10 5	<u>\</u>		
This co	urse will prov	Co de total-time cr			nd Expectation					s need to have	ve
		ly times for 15				, are wor	ui on	e erean,	und Student.		C
Student	ts will systema	tically learn the	e basic know	wledge	and theories	related to	o com	puter ne	tworks as sh	own below.	
2. OSI 1 3. Physi 4. Netw	c mechanisms reference mod ical layer and vork layer and	datalink layer	tworks								
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* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation	n Methods and Important Points (10.5pt)
	1		
	2		
E	3		
Exams	4		
	5		
	6		
	1) V	Several quizzes to understand bas	sic knowledge and theories related to computer networks
	2 V	learned in class will be given. Spe	ecifically, the following items are reviewed:
	3 V		
Quizzes	(4) V	2. The physical layer and the data	nation communication, the OSI model, and the TCP/IP model
	5 V	3. The network layer and the tran	
	6 V	4. Routing protocols and the appl	
			ic knowledge and theories related to computer networks
	2 V	learned in class will be given. Spe	ecifically, the following items are reviewed:
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Reports	(<u>4</u>) V	2. The physical layer and the data	nation communication, the OSI model, and the TCP/IP model
	5 V	3. The network layer and the tran	
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	1		
	2		
Presentations	3		
Fresentations	4		
	5		
	6		
	1		
	2		
Works	3		
W OIKS	4		
	5		
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	1		
	2		
Portfolios	3		
1 ortionos	(4)		
	5		
	6		
	1		
	2		
Others	3		
	4		
	5		
Current file Anthioson	©		
Specific Achieve		al Achievement (10.5pt)	Description of Standard Achievement (10.5pt)
			By the end of the course, students should be able to explain
following items sys	stematically	y related to computer networks:	the basic contents of the following items related to
		manieution systems	computer networks: 1. Basic information and communication systems
 OSI reference m Physical layer ar 		CF/IF models	2. OSI reference model and TCP/IP model
4. Network layer a			 Physical layer and datalink layer Network layer and transport layer
5. Routing protocol		•	5. Routing protocol and application layer
Additionally, stude	nts should	be able to use appropriate	
	s and tools		Additionally, students should be able to use appropriate network commands and tools for basic network diagnostics.
management.			

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes
1	Overview for information & communication network (Part 1): Learn the history of various communication technologies and protocol standardization.		Review of lecture content (history of information network, etc.) and preparation for Chapter 1 (basic network knowledge) of the textbook.	200
2	Overview for information & communication network (Part 2): Outline network technologies and usage patterns in recent years and learn about their relationship with this course.	Lecture and exercises	Review of lecture contents (current network usage) and preparation for Chapter 2 (basic knowledge of TCP/IP) of the textbook.	200
3 /	Fundamentals of TCP/IP: Learn the basic principles of TCP/IP networks, the mechanisms and roles of	Lecture and exercises	Review of lecture contents (OSI reference model and TCP/IP), and preparation for Chapter 3 (Datalink) of the textbook.	200
4	Datalink (Part 1):	Lecture and exercises	Review and preparation of lecture contents (various datalink systems).	200
5	Datalink (Part 2): Learn about wireless communication, PPP, public access network, etc.	Lecture and exercises	Review of lecture contents (various datalink systems), and preparation for Chapter 4 (IP protocol) of the textbook.	200
6 /	IP protocol: Learn about IP, IP address (IPv4/IPv6), routing, IP segmentation and reconstruction.	Lecture and exercises	Review not only the basic contents of IP and IP address calculation, but also the contents of the lectures learned in the first half.	200
7 /	Midterm Review: Test or exercises will be conducted to deepen understanding of the content and exercises relating to the lectures that have been given thus far.	Test or exercises	Preparation for Chapter 5 (Technologies related to IP) of the textbook.	200
8	IP related technologies: Learn about DNS, ARP, ICMP, DHCP, NAT, etc.	Lecture and exercises	Review of lecture contents (IP-related technologies) and preparation for Chapter 6 (TCP and UDP) of the textbook.	200
9 /	TCP and UDP (Part 1): Learn about TCP, UDP, port number, window control, retransmission control, flow control, and congestion control.	Lecture and exercises	Review and preparation for Chapter 6 (TCP and UDP) of the textbook.	200
10	TCP and UDP (Part 2): Learn about TCP, UDP, port number, window control, retransmission control, flow control, and congestion control. Additionally, exercises using these protocols will be conducted.	Lecture and exercises	Review of Chapter 6 (TCP and UDP) and preparation for Chapter 7 (Routing Protocol) of the textbook.	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
	Routing Protocol: Learn about static routing, dynamic routing, and routing algorithms such as RIP and OSPF.	Lecture and exercises	Review of lecture contents (Routing Protocol) and preparation for Chapter 8 (Application Protocol) of the textbook.	200
12 /	Application Protocol: Learn about the server-client communication mechanism using the TCP/IP protocol and actually use various protocols.	Lecture and exercises	Review of lecture contents (various protocols in Application layer) and preparation for Chapter 9 (security) and appendix (Physical layer) of the textbook.	200
13	Security and Appendix (Physical layer): Learn about the importance of network security in the Internet, its realization technologies and physical layer.	Lecture and exercises	Review of lecture content and review for final test.	200
/	Test: Through lectures by external lecturers, students will deepen their understanding of what they have learned so far, and confirm whether they have internalized the knowledge and skills they have learned.	Lectures by external lecturers & test	Review what you have learned so far.	200
15 /	Self-evaluate achievement and general exercise: Review the returned answer-sheet and confirm the level of understanding of the lecture. Through exercises, students will deepen their understanding of what they have learned.	Self-check and exercises (LAN-cable fabrication)		200

Field Course Name Credits Course Code Semester Class S Dept. S Specialized Info. Required Business Accounting 2 551600 First Lectu Tota Target Grade Instructor Office E-mail Address Materials Office H 5 STEVENSON, Ian Habasonok C: 101.201 E-mail Address By appoint 2 Closing procedure This course is for developing business, finance and accounting ability students. The goal is to learn the bookkeeping procedure which reco- management efforts of the emanagers, and the financial statements report the business results to the stakeholders of the company, and the address results to the actual management situation of the con management situation of the con through accounting information, such as statements, quarterly report This course will provide total-time credits. 45 50-minute study times are worth one credit, and students need to har minute self-study times for 150 -minute classes. This course introduces basic business and accounting principles to students will practice and use these pri through a series of activities designed to strengthen and deepen student understanding of the material. Required Materials (textbooks, reference books, Reference books: Farget Abilities for Students (10.5pt) Textbooks: Required bale to understand assets, liabilities, capital, income, and expenses, and list specifc item annee.						-		In	structor wit	th "*"means an ins	tructor with compa	iy experience	
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(5) b, i Students will be able to read and understand cash flow statements.	-	Stude											
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Evaluation Method Exams Quizzes Reports Presentations Works Portfolios Others	Criteria an	Eval	nts will be able to										
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Ability to capture knowledge 6 6 8 0 0 0 0		Total Evaluatior ility to capture k ility to think, rea llaboration and	uation Method n Ratio nowledge son and create leadership	Exams 30 6 6	I Quiz 30 6 6	Evaluation Cr zes Repor 0 40 8 8	iteria ts Preser	0 0 0	0 0 0 0	0 0 0	0 0 0 0	Total 100 20	

* The numerical breakdown shown by Comprehensive Strength Criteria is an approximate guideline for class management.

Evaluation Method	Target Ability	Evaluation	Methods and Important Points (10.5pt)
		~	
Exams	2 V	Students will be evaluated on a f	inal exam.
	③ レ ○ ト	-	
	④ 5 レ		
	5 6 レ	-	
	2 V	Students will be evaluated on a c	luiz.
<u> </u>	3 V		
Quizzes	(4) V		
	5 V		
	6 V		
		-	
	2 V	Students will be evaluated on the	ir assignments for each unit.
Reports	③ レ	-	
	④レ	-	
		-	
	1		
Presentations	2	-	
	3		
Fresentations	4		
	5		
	6		
	1	-	
	2	-	
Works	3 ④	-	
	5	-	
	6	-	
	1		
	2		
Portfolios	3		
1 ortionos	4	4	
	5	-	
Others	6		
	① ②	-	
	3	4	
	4	-	
	5		
	6		
Specific Achieve			Description of Standard Achievement (10 5 pt)
		al Achievement (10.5pt) ng information is useful for	Description of Standard Achievement (10.5pt)Understand that accounting information is useful for
		iness owners and stakeholders.	making decisions for business owners and stakeholders.
• Understand the	"Bookkee	ping cycle" to create accounting	• Understand the "Bookkeeping cycle" to create accounting
information and			information and complete the exercisesBe able to create financial statements.
		ial statements and understand the oblems of a company.	• De able to create infancial statements.
		······································	

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
1 /	Guidance About accounting	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
2	Business simulation Exploration and discovery of concepts	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
3	Management resources Five elements of accounting	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
4	Transactions & Journals Journal entries and ledger postings	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
5	"Bookkeeping cycle" Create the trial balance of totals and balances	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
6 /	Wrap up and review for quiz	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
7 /	Quiz	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
8	Return and review quiz Accounting principles (GAAP)	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
9	Cost and depreciation	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
10 /	Balance sheet details and creation	Lecture Q&A Exercises	Review the handouts Finish the assignments	200

Class No. Date	Class Content (10pt)	Method (10pt)	Assignments (10pt) (Preview and Review)	Time (Minutes)
11 /	Profit and loss statement details and creation	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
12	Analysis of balance sheet and profit and loss statement	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
13	Cash flow statements Financial and Management accounting		Review the handouts Finish the assignments	200
14	Management analysis practice (MD & A)	Lecture Q&A Exercises	Review the handouts Finish the assignments	200
15	Review	Lecture Q&A Exercises	Review the handouts	200
16 /	Final Exam			
17 /	Return and review final exam			