### 総合理工学位プログラム <学士(工学)> コンピテンス一覧

# Bachelor's Program in Interdisciplinary Engineering Competence List <a href="#">CBachelor of Engineering</a>>

#### ■汎用コンピテンス(学士課程) Generic Competences(Bachelor Program)

1	コミュニケーション能力	母語や外国語を適切に用いるとともに、各種メディアを利用したプレゼンテーション等を 行うコミュニケーション能力									
'	Communication ability	Communication ability to use the mother tongue and foreign languages properly and make presentations, etc. using various media									
	批判的·創造的思考力	一般的・専門的知識の体系的理解をベースに批判的・創造的に思考する能力									
2	Ability for critical and creative thinking	Ability to think critically and creatively based on systematic understanding of general and specialized knowledge									
3	データ・情報リテラシー	様々な事象や情報を数量的手法やコンピュータ等を用いて適切に解析・処理する能力									
	Data and information literacy	Ability to properly analyze and process various events and information using quantitative methods, computers, etc.									
	広い視野と国際性	自身の専門に留まらず文化・社会と自然・物質に関して幅広く理解し、異文化を理 解・尊重する能力									
4	Broad perspective and international character	Ability to broadly understand culture, society, nature, and materials and understand and respect different cultures and be not only involved in one's own expertise									
	心身の健康と人間性・倫理性	芸術やスポーツへの理解と実践等を通して心と身体の健康を保ち、人間性と倫理性を 有する市民としての責任を自覚して実践する能力									
5	Mental and physical health, humanity, and ethics	Ability to maintain mental and physical health through the understanding, practice, etc. of arts and sports and be conscious of one's responsibility and put it into practice as a citizen with humanity and ethics									
6	協働性・主体性・自律性	チームワークやリーダーシップを通して様々な物事に対処し自己を管理しながら自律的に学び続け行動する能力									
	Cooperative, independent, and autonomous attitudes	Ability to keep learning and act autonomously while dealing with a situation through team work and leadership and practicing self-management									

#### ■専門コンピテンス Specific Competences

1	数学的な論理力と計算力	解析学や線形代数を基礎とした数学的な思考力と物理的課題の解決に向けた計算 カ									
'	Mathematical logic and calculation skills	Mathematical thinking skills based on analysis and linear algebra, and computational skills to solve physical problems									
2	物理現象の理解	量子力学から電磁気学、熱力学にいたる広範な物理現象の理解									
2	Understanding of physical phenomena	Understanding of a wide range of physical phenomena, from mechanics to electromagnetism to thermodynamics									
	化学・生物現象の理解物理学実験・システム工学実験の分析力	広物理学・工学実験を分析かつ批判的に評価する能力、多文化・異分野の人の中で の協調性									
3	Understanding of chemical and biological phenomena, and analytical skills for physics and systems engineering experiments	Ability to analyze and critically evaluate a wide range of physics and engineering experiments, and to work well in a multicultural and interdisciplinary environment									
	ミクロエ学・ナノ科学の能力	ミクロ工学・ナノ科学に関する幅広い知識と多様な研究手法についての理解									
4	Micro-engineering and nanoscience capabilities	Broad knowledge of micro-engineering and nanoscience and an understanding of diverse research methods									
_	マクロエ学・システム工学の能力	マクロ工学・システム工学に関する幅広い知識と多様な研究手法についての理解									
5	Macro-engineering and systems engineering capabilities	Broad knowledge of macro-engineering and systems engineering and an understanding of diverse research methods									
	課題探求·解決能力	分野横断的課題を探求して原理的視点で解決、意思疎通・プレゼンする能力									
6	Ability to explore and solve problems	Ability to explore cross-disciplinary issues and solve them from a principled perspective, and to communicate and present information									

## 総合理工学位プログラム <学士(工学)> カリキュラム・マップ Bachelor's Program in Interdisciplinary Engineering <Bachelor of Engineering> Curriculum Map

\*科目により異なります \*Varies by subject.

																· · · · · · · · · · · · · · · · · · ·	*科目により異	なります *Va	ries by subject. 必修/選択 /自由の別	
							汎用コンピテンス Generic Competences								専門コン Specific(	ピテンス Competences				
							1	2	3	4	5	6	1	2	3	4	5	6		
		科目番号				標準履修 年次	ション能力		リテラシー	広い視野と国 際性	心身の健康と 人間性・倫理 性	協働性・主体 性・自律性	数学的な論理 力と計算力	物理現象の理 解	化学・生物現 象の理解物理 学実験・シス テム工学実験 の分析力	ミクロ工学・ ナノ科学の能 力	マクロ工学・ システム工学 の能力	課題探求·解 決能力		
	科目区分 Course Category		授業科目の名称 Course Name		単位数 Credits	Standard s registra tion year	Communication ability	Ability for critical and creative thinking	Data and information literacy	Broad perspective and international character	Mental and physical health, humanity, and ethics	Cooperative, independent, and autonomous attitudes	Mathematical logic and calculation skills	Understanding of physical phenomena	Understanding of chemical and biological phenomena, and analytical	engineering and nanoscience	Macro- engineering and systems engineering capabilities	Ability to explore and solve problems	必修 Requir ed 選択 自由 Core Free Electi ves ves	
															skills for physics and systems engineering experiments					
		11****	総合科目(ファーストイヤーセミナー)	Multidisciplinary Subjects(First Year														0	0	
		12****	総合科目(学問への誘い)	Multidisciplinary Subjects(Invitation to	_													0	0	
		12****	総合科目(学士基盤科目)	Arts and Sciences)  Multidisciplinary Subjects(exc. First Year Seminar and Invitation to Arts and Sciences)													0	0		
		2****	体育	Physical Education	_									0					0	
		2****	体育	Physical Education Foreign	_									0				_	0	
	共通科目	3****	外国語(原則日本語)	Language (Japanese, in principle.)	_	<b>土</b> 语	看彩日 <i>位</i>	<b>りカリキ</b>	$z_{-1} = 1$	. <b>~</b> ~ ~	プを参	: 8召						0	0	
基礎科目 General Foundati	Common Foundation Subject	ts <sub>3*****</sub>	外国語(必修で履修した科 目および母国語を除く)	Foreign Language (except those learnt as required course, and mother tongue)	-	Refer	to the C	urriculum N	Map of Com	mon Founda	رو ہے رہ ition Subje	ects						0	0	
on Subjects		3****	日本語	Japanese Language														0	0	
		6****		Information Literacy(Lectures)	-								0						0	
		6****	情報リテラシー(演習)	Information Literacy (Exercises)	-													0		
		6****	データサイエンス	Data Science														0		
		4****	芸術	Art													0			
		99****	博物館に関する科目	Museum-related subjects														0		
	関連科目 Specific Foundation Subjects	FJ3***		Internship I, II, & III  Subjects that are offered	6. 0	1-4						0						0	0	
			他学群・学類の開設授業科 目 	by other Schools or Colleges	*	*												0	0	
		FJ20004 FJ20014	Linear Algebra I Linear Algebra II	Linear Algebra I	3. 0	1			0				0						0	
		FJ20124	Introduction to Single-	Introduction to Single-	2. 0	1			0				0						0	
		FJ20134	Variable Calculus I  Introduction to Single-		2. 0	1			0				0						0	
		FJ20144	Variable Calculus II  Advanced Calculus	Variable Calculus II  Advanced Calculus	4. 0	1			0				0						0	
		FJ20201	Probability and	Probability and	2. 0	1			0				0						0	
専門基礎		FJ26004	Statistics Mechanics I	Statistics Mechanics I	2. 0	1		0						0					0	
科目 Foundati		FJ26014	Mechanics II	Mechanics II	2. 0	1		0						0					0	
on Subjects		FJ22004	Electromagnetism I	Electromagnetism I	3. 0	2		0						0					0	
for Major		FJ22014	Electromagnetism II	Electromagnetism II	3. 0	2	-	0						0					0	
maj VI		FJ26104	Thermodynamics I	Thermodynamics I	2. 0	2		0						0					0	
		FJ26114 FJ25101	Thermodynamics II  Electrical Circuit	Thermodynamics II  Electrical Circuit	1. 0	2		0						0		0	0		0	
		FJ27004	Programming I	Programming I	2. 0	1			0				0						0	
		FJ27014	Programming II	Programming II	1. 0	1			0				0						0	
		FJ27024	Programming III	Programming III	2. 0	2			0				0						0	
		FJ27034	Programming IV	Programming IV	1. 0	2	_	_	0			_	0						0	
		FJ28003	Fundamental Labs I	Fundamental Labs I	2. 0	2	0	0				0			0				0	
	Required	FJ28013 FJ11001	Fundamental Labs II  Engineering Ethics	Fundamental Labs II  Engineering Ethics	2. 0	<u>2</u> Λ	0	0			0	0			0	0	0		0	
専門科目 Major		FJ11101	Engineering Ethics Introduction to Interdisciplinary Engineering I	Engineering Ethics Introduction to Interdisciplinary Engineering I	1. 0	1				0				0		0	0		0	
Subjects		FJ11111	Introduction to Interdisciplinary Engineering II	Introduction to Interdisciplinary Engineering II	1. 0	1				0				0		0	0		0	

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			_		1	T											*科目により異	具なります *Va	<u>ries b</u>	y sub	ject.
								汎用コンピテンス Generic Competences  専門コンピテンス Specific Competences								∕ I Re	必修/選択 /自由の別 Required, ctive, or Free				
							1	2	3	4	5	6	1	2	3	4	5	6			
		科目番号 Course Number	155 414 -			標準履修	ション能力   	批判的·創造 的思考力	データ・情報 リテラシー	広い視野と国 際性	心身の健康と 人間性・倫理 性	協働性・主体 性・自律性	数学的な論理 力と計算力	物理現象の理 解	化学・生物現 象の理解物理 学実験・シス テム工学実験 の分析力	ミクロ工学・ ナノ科学の能 力	マクロ工学・ システム工学 の能力	課題探求・解 決能力			
	科目区分 Course Category		授業科目の名称 Course Name		単位数 Credits	Standard registra tion year	Communication ability	Ability for critical and creative thinking	Data and information literacy	Broad perspective and international character	Mental and physical health, humanity, and ethics	Cooperative, independent, and autonomous attitudes	Mathematical logic and calculation skills	Understanding of physical phenomena	Understanding of chemical and biological phenomena, and	Micro- engineering and nanoscience capabilities	Macro- engineering and systems engineering capabilities	Ability to explore and solve problems	必修 Requir ed	選択 Core Electi ves	自由 Free Electi ves
															analytical skills for physics and systems engineering experiments						
		FJ10001	Complex Analysis	Complex Analysis	3. 0	2			0				0						0		
		FJ10101	Applied Mathematics	Applied Mathematics	3. 0	2			0				0						0		
		FJ12001	Modern Physics	Modern Physics	3. 0	2		0						0					0		
		FJ15001	System Modeling	System Modeling	2. 0	2		0									0		0		
		FJ15101	Electronic Circuits	Electronic Circuits	2. 0	2		0								0	0		0		
		FJ18003	Advanced Labs I	Advanced Labs I	2. 0	3	0	0				0			0				0		
		FJ18013	Advanced Labs II	Advanced Labs II	2. 0	3	0	0				0			0				0		
		FJ19003	Interdisciplinary Engineering PBL I	Interdisciplinary Engineering PBL I	6. 0	3	0	0		0		0				0	0	0	0		
		FJ19013	Interdisciplinary Engineering PBL II	Interdisciplinary Engineering PBL II	6. 0	3	0	0		0		0				0	0	0	0		
		FJ19023	Interdisciplinary Engineering PBL III Interdisciplinary	Interdisciplinary Engineering PBL III Interdisciplinary	6. 0	4	0	0		0		0				0	0	0	0		
		FJ19033	Engineering PBL IV	Engineering PBL IV	6. 0	4	0	0		0		0				0	0	0	0		
	Core Electives Group A	FJ12101	Statistical Physics I	Statistical Physics I	1. 0	3		0						0						0	
		FJ12111	Statistical Physics II	Statistical Physics II	1. 0	3		0						0						0	
		FJ12121	Statistical Physics III	Statistical Physics III	1. 0	3		0						0						0	***************************************
専門科目		FJ12201	Quantum Mechanics I	Quantum Mechanics I	1. 0	3		0						0						0	
Major Subjects			Quantum Mechanics II	Quantum Mechanics II	1. 0	3		0						0						0	
25.5,0000			Quantum Mechanics III	Quantum Mechanics III	1. 0	3		0						0						0	
		FJ12301		sm Advanced Electromagnetism	1. 0	3		0					0	0						0	
		FJ12311	Advanced Electromagneti	sm Advanced Electromagnetism	1.0	3		0					0	0						0	
		FJ12321	Advanced Electromagneti	sm Advanced Electromagnetism	1. 0	4		0					0	0						0	
		FJ12401	Solid State Physics I	Solid State Physics I	1. 0	3		0						0		0				0	
		FJ12411	Solid State Physics II	Solid State Physics II	1. 0	3		0						0		0				0	
			Solid State Physics III		1. 0	4		0						0		0				0	
			Control Systems I	Control Systems I	2. 0	3		0					0				0			0	
			Control Systems II	Control Systems II	2. 0	3		0					0				0			0	
			Fluid Dynamics	Fluid Dynamics	1. 0	3		0						0			0			0	
			Mechanics of Materials	and an analysis of the second	1. 0	3		0						0			0			0	
	Core Flootives Group P		Energy Engineering	Energy Engineering	1. 0	ئ 1		0						0		0	0			0	
	Core Electives Group B		Chemistry   Chemistry   I	Chemistry   Chemistry   I	1. 0	1		0								0				0	
			Chemistry III	Chemistry III	1. 0	1 1		0								0				0	
		LUUZZSI	OHOMISTIA III	OHOMESTE A LIL	1. 0	<u> </u>														$\mathcal{O}$	