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
＜Bachelor of Engineering＞

■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 Communication ability	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 to use the mother tongue and foreign languages properly and make presentations, etc. using various media
2	批判的・創造的思考力 Ability for critical and creative thinking	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 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 Data and information literacy	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 Ability to properly analyze and process various events and information using quantitative methods, computers, etc.
4	広い視野と国際性 Broad perspective and international character	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 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
5	心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics	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 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 Cooperative, independent, and autonomous attitudes	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 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 Mathematical logic and calculation skills	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力 Mathematical thinking skills based on analysis and linear algebra, and computational skills to solve physical problems
2	物理現象の理解 Understanding of physical phenomena	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 Understanding of a wide range of physical phenomena, from mechanics to electromagnetism to thermodynamics
3	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 Understanding of chemical and biological phenomena, and analytical skills for physics and systems engineering experiments	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 Ability to analyze and critically evaluate a wide range of physics and engineering experiments, and to work well in a multicultural and interdisciplinary environment
4	ミクロ工学・ナノ科学の能力 Micro-engineering and nanoscience capabilities	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 Broad knowledge of micro-engineering and nanoscience and an understanding of diverse research methods
5	マクロ工学・システム工学の能力 Macro-engineering and systems engineering capabilities	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 Broad knowledge of macro-engineering and systems engineering and an understanding of diverse research methods
6	課題探求・解決能力 Ability to explore and solve problems	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 Ability to explore cross-disciplinary issues and solve them from a principled perspective, and to communicate and present information

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Bachelor's Program in Interdisciplinary Engineering　＜Bachelor of Engineering＞　Curriculum Map

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科目区分 Course Category			科目番号 Course Number	授業科目の名称 Course Name		単位数 Credits	標準履修年次 Standard registration year	汎用コンピテンス Generic Competences						専門コンピテンス Specific Competences						必修／選択／自由の別 Required, Elective, or Free		
								1 コミュニケーション能力 Communication ability	2 批判的・創造的思考力 Ability for critical and creative thinking	3 データ・情報リテラシー Data and information literacy	4 広い視野と国際性 Broad perspective and international character	5 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics	6 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes	1 数学的な論理力と計算力 Mathematical logic and calculation skills	2 物理現象の理解 Understanding of physical phenomena	3 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 Understanding of chemical and biological phenomena, and analytical skills for physics and systems engineering experiments	4 ミクロ工学・ナノ科学の能力 Micro-engineering and nanoscience capabilities	5 マクロ工学・システム工学の能力 Macro-engineering and systems engineering capabilities	6 課題探求・解決能力 Ability to explore and solve problems	必修 Required	選択 Core Electives	自由 Free Electives
基礎科目 General Foundation Subjects	共通科目 Common Foundation Subjects		11******	総合科目（ﾌｧｰｽﾄｲﾔｰｾﾐﾅｰ）	Multidisciplinary Subjects(First Year Seminar)			共通科目のカリキュラム・マップを参照 Refer to the Curriculum Map of Common Foundation Subjects											○	○		
			12******	総合科目（学問への誘い）	Multidisciplinary Subjects(Invitation to Arts and Sciences)													○	○		
			12******	総合科目（学士基盤科目）	Multidisciplinary Subjects(exc. First Year Seminar and Invitation to Arts and Sciences)													○		○	
			2******	体育	Physical Education										○					○		
			2******	体育	Physical Education										○						○	
			3******	外国語（原則日本語）	Foreign Language(Japanese, in principle.)														○	○		
			3******	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)														○		○	
			3******	日本語	Japanese Language														○		○	
			6******	情報リテラシー(講義)	Information Literacy(Lectures)									○						○		
			6******	情報リテラシー(演習)	Information Literacy (Exercises)									○						○		
			6******	データサイエンス	Data Science											○				○		
			4******	芸術	Art														○		○	
			99******	博物館に関する科目	Museum-related subjects														○		○	
	関連科目 Specific Foundation Subjects		FJ3****	インターンシップ I, II, & III	Internship I, II, & III	6.0	1-4						○						○		○	
				他学群・学類の開設授業科目	Subjects that are offered by other Schools or Colleges	*	*												○		○	
専門基礎科目 Foundation Subjects for Major			FJ20004	Linear Algebra I	Linear Algebra I	3.0	1			○				○						○		
			FJ20014	Linear Algebra II	Linear Algebra II	3.0	1			○				○						○		
			FJ20124	Introduction to Single-Variable Calculus I	Introduction to Single-Variable Calculus I	2.0	1			○				○						○		
			FJ20134	Introduction to Single-Variable Calculus II	Introduction to Single-Variable Calculus II	2.0	1			○				○						○		
			FJ20144	Advanced Calculus	Advanced Calculus	4.0	1			○				○						○		
			FJ20201	Probability and Statistics	Probability and Statistics	2.0	1			○				○						○		
			FJ26004	Mechanics I	Mechanics I	2.0	1		○						○					○		
			FJ26014	Mechanics II	Mechanics II	2.0	1		○						○					○		
			FJ22004	Electromagnetism I	Electromagnetism I	3.0	2		○						○					○		
			FJ22014	Electromagnetism II	Electromagnetism II	3.0	2		○						○					○		
			FJ26104	Thermodynamics I	Thermodynamics I	2.0	2		○						○					○		
			FJ26114	Thermodynamics II	Thermodynamics II	1.0	2		○						○					○		
			FJ25101	Electrical Circuit	Electrical Circuit	2.0	2		○									○	○			
			FJ27004	Programming I	Programming I	2.0	1			○				○						○		
			FJ27014	Programming II	Programming II	1.0	1			○				○						○		
			FJ27024	Programming III	Programming III	2.0	2			○				○						○		
			FJ27034	Programming IV	Programming IV	1.0	2			○				○						○		
			FJ28003	Fundamental Labs I	Fundamental Labs I	2.0	2	○	○				○			○				○		
			FJ28013	Fundamental Labs II	Fundamental Labs II	2.0	2	○	○				○			○				○		
専門科目 Major Subjects	Required		FJ11001	Engineering Ethics	Engineering Ethics	1.0	4					○						○	○			
			FJ11101	Introduction to Interdisciplinary Engineering I	Introduction to Interdisciplinary Engineering I	1.0	1				○				○		○	○		○		
			FJ11111	Introduction to Interdisciplinary Engineering II	Introduction to Interdisciplinary Engineering II	1.0	1				○				○		○	○		○		

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専門科目 Major Subjects			FJ10001	Complex Analysis	Complex Analysis	3.0	2			○				○						○		
			FJ10101	Applied Mathematics	Applied Mathematics	3.0	2			○				○						○		
			FJ12001	Modern Physics	Modern Physics	3.0	2		○						○					○		
			FJ15001	System Modeling	System Modeling	2.0	2		○									○		○		
			FJ15101	Electronic Circuits	Electronic Circuits	2.0	2		○								○	○		○		
			FJ18003	Advanced Labs I	Advanced Labs I	2.0	3	○	○				○			○				○		
			FJ18013	Advanced Labs II	Advanced Labs II	2.0	3	○	○				○			○				○		
			FJ19003	Interdisciplinary Engineering PBL I	Interdisciplinary Engineering PBL I	6.0	3	○	○		○		○				○	○	○	○		
			FJ19013	Interdisciplinary Engineering PBL II	Interdisciplinary Engineering PBL II	6.0	3	○	○		○		○				○	○	○	○		
			FJ19023	Interdisciplinary Engineering PBL III	Interdisciplinary Engineering PBL III	6.0	4	○	○		○		○				○	○	○	○		
			FJ19033	Interdisciplinary Engineering PBL IV	Interdisciplinary Engineering PBL IV	6.0	4	○	○		○		○				○	○	○	○		
	Core Electives	Group A	FJ12101	Statistical Physics I	Statistical Physics I	1.0	3		○						○						○	
			FJ12111	Statistical Physics II	Statistical Physics II	1.0	3		○						○						○	
			FJ12121	Statistical Physics III	Statistical Physics III	1.0	3		○						○						○	
			FJ12201	Quantum Mechanics I	Quantum Mechanics I	1.0	3		○						○						○	
			FJ12211	Quantum Mechanics II	Quantum Mechanics II	1.0	3		○						○						○	
			FJ12221	Quantum Mechanics III	Quantum Mechanics III	1.0	3		○						○						○	
			FJ12301	Advanced Electromagnetism I	Advanced Electromagnetism I	1.0	3		○					○	○						○	
			FJ12311	Advanced Electromagnetism II	Advanced Electromagnetism II	1.0	3		○					○	○						○	
			FJ12321	Advanced Electromagnetism III	Advanced Electromagnetism III	1.0	4		○					○	○						○	
			FJ12401	Solid State Physics I	Solid State Physics I	1.0	3		○						○			○			○	
			FJ12411	Solid State Physics II	Solid State Physics II	1.0	3		○						○			○			○	
			FJ12421	Solid State Physics III	Solid State Physics III	1.0	4		○						○			○			○	
			FJ15011	Control Systems I	Control Systems I	2.0	3		○					○					○		○	
			FJ15021	Control Systems II	Control Systems II	2.0	3		○					○					○		○	
			FJ16011	Fluid Dynamics I	Fluid Dynamics I	3.0	3		○						○				○		○	
	Core Electives	Group B	EG02211	Chemistry I	Chemistry I	1.0	1		○									○			○	
			EG02221	Chemistry II	Chemistry II	1.0	1		○									○			○	
			EG02231	Chemistry III	Chemistry III	1.0	1		○									○			○	