For entrants in AY 2021

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Cluster 2 Electrical, Electronic and Systems Engineering

Required subject (period of registration specified)

Compulsory elective subject (any of these subjects shall be registered)

Free elective subject (any of these subjects shall be registered)

Subject Type				Required No. of credits	Class subjects, etc.	No. of credits	Type of course registration	Year in which the subject is taken(*The lower figure means semester) Note 1															
								1st grade				2nd grade				3rd grade				4th grade			
								Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall	
								1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
Liberal Arts Education Subjects	Common Subjects	Basic Courses in University Education	Basic Academic Skills	2		2	Compulsory elective																
			Introduction to University Education	2	Introduction to University Education	2	Required																
			Introductory Seminar for First-Year	2	Introductory Seminar for First-Year Students	2	Required																
		Area Courses		4	Courses in Arts and Humanities/Social Sciences	2	Compulsory elective																
				4	Courses in Natural Sciences	2																	
		Foreign Languages	English (Note2 3) Basic English Usage	2	Basic English UsageI	1	Required																
					Basic English UsageII	1																	
			Communication	2	CommunicationI	1	Required																
					Communication I	1																	
			Communication	2	Communication II	1	Required																
					Communication II	1																	
			Initial Foreign Languages (Select one language from German, French, Spanish, Russian, Chinese, Korean and Arabic)	2	1 subjects from Basic language I	1	Compulsory elective																
					1 subjects from Basic language II	1																	
		Information and Data Science Courses		2	Note 4 Elements of Information Literacy or Exercise in Information Literacy	2	Compulsory elective																
		Health and Sports Courses		2		1or2	Compulsory elective																
	Basic Subjects			16	CalculusI	2	Required																
					CalculusII	2																	
					Linear AlgebraI	2																	
					Linear AlgebraII	2																	
					Seminar in Basic Mathematics I	1																	
					Seminar in Basic Mathematics II	1																	
					General Mechanics I	2																	
					General Mechanics II	2																	
					Experimental Methods and Laboratory Work in Physics I Note 5	1																	
					Experimental Methods and Laboratory Work in Physics II Note 5	1																	
	Free elective subjects			6	From all Subject Type Note 6		Free elective																
	No. of credits required for graduation			48																			

Note 1 When students fail to acquire the credit during the term or semester marked with in the boxes for the year in which the course is taken, they can take the course in subsequent terms or semesters. Depending on class subject, courses may be offered in semesters or terms different from those scheduled. Please be sure to check the time schedule for Liberal Arts Education subjects

Note 2 The credit obtained by mastery of "English-speaking Countries Field Research" or self-directed study of "Online Seminar in English A B" cannot be counted towards the credit necessary for graduation. The credit obtained by Overseas Language Training can be recognized as Communication or if application is made in advance. For more details, please refer to the article on English in Liberal Arts Education in the student handbook.

Note 3

Note 4

Note 5 Students must take both Experimental Methods and Laboratory Work 1credit and Experimental Methods and Laboratory Work 1credit .

Communication Basics can be included in this subject type.

Required subject
○ Compulsory elective subje
Free elective subject

Class Subjects	Credits	Type of course registration		Class Hours/Week																Note
		Electrical, Systems and Information Engineering	Electronic Devices and Systems	1st grade				2nd grade				3rd grade				4th grade				
				Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		
				1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	
Applied Mathematics I	2					4														
Applied Mathematics II	2							4												
Applied Mathematics III	2								4											
Discrete Mathematics I	2								4											(School of Informatics and Data Science)
Synthesis of Applied Mathematics	2									4										
Engineering Mathematics A	2											4								
Engineering Mathematics C	2										4									
Probability and Statistics	2							4												
Technical English	1													4						
Introduction to Energy and Information Systems	2						4													
Electric Circuit Theory I	2					4														
Programming I	2								4											
Programming II	2									4										
Programming III	2											4								
Basic Experiments in Electrical Engineering I	2							10	10											take classes at one of the terms
Basic Experiments in Electrical Engineering II	2									10	10									take classes at one of the terms
Experiments in Electrical Engineering Electronics and System Engineering I	2											10	10							take classes at one of the terms
Experiments in Electrical Engineering Electronics and System Engineering II	2													10	10					take classes at one of the terms

Required subject
○ Compulsory elective subject
Free elective subject

Class Subjects	Credits	Type of course	Class Hours/Week																Note
			1st grade				2nd grade				3rd grade				4th grade				
			Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		
			1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	
Electromagnetism I																			
Electromagnetism II																			
Exercise of Electromagnetism I																			
Exercise of Electromagnetism II																			
Electromagnetic Wave Propagation		○																	
Introduction to Physical Electronics																			
Quantum Mechanics																			
Thermodynamics and Statistical Mechanics		○																	
Solid State Physics		○																	
Surface Science and Nanotechnology		○																	
Introduction to Semiconductor Devices and Circuits																			
Solid State Physics																			
Semiconductor Device Engineering		○																	
Optoelectronic Semiconductor Devices		○																	
Electronic Material Engineering		○																	
Electric and Electronic Measurements		○																	
Electric Transient Phenomena		○																	
Logic System Design																			
CMOS Logic Circuit Design		○																	
Semiconductor Process Engineering		○																	
CMOS Integrated Design		○																	
Circuit Theory II		○																	
Electronic Circuits																			
Electric Energy Generation and Conversion																			
Fundamentals of Power Systems																			
Control Systems Engineering I																			
Control Systems Engineering II																			
Signal Processing Engineering																			
Bioelectrical Engineering																			
Robotics																			
Communication Engineering		○																	
Digital Circuit Design																			(School of Informatics and Data Science)
Computer Architecture																			(School of Informatics and Data Science)
Databases																			(School of Informatics and Data Science)
Computer Network																			(School of Informatics and Data Science)
Algorithms and Data Structures																			(School of Informatics and Data Science)
Human Computer Interaction																			(School of Informatics and Data Science)
Graduation Thesis																			

Academic Achievements in Electronic Devices and Systems Program

The Relationship between Evaluation Items and Evaluation Criteria

		Excellent	Very Good	Good
(1)	The ethics and understanding about the relations between society and technology considered basically necessary for engineers.	Sufficiently understand relations between society and technology, and be able to behave with a sufficient sense of ethics.	Understand relations between society and technology at the standard level, and be able to behave with a standard sense of ethics.	Marginally understand relations between society and technology, and be able to behave with a minimum sense of ethics.
(2)	Basic knowledge of mathematics such as calculus and linear algebra, which is required for scientists/engineers.	Acquire and be able to utilize sufficient basic knowledge of mathematics such as calculus and linear algebra.	Acquire and be able to utilize standard basic knowledge of mathematics such as calculus and linear algebra.	Acquire and be able to utilize minimum basic knowledge of mathematics such as calculus and linear algebra.
(3)	Basic knowledge of theories and experimental methods of physics, which is required for scientists/engineers.	Acquire and be able to utilize sufficient basic knowledge of theories and experimental methods of physics.	Acquire and be able to utilize standard basic knowledge of theories and experimental methods of physics.	Acquire and be able to utilize minimum basic knowledge of theories and experimental methods of physics.
(4)	Comprehensive understanding and knowledge of technologies in electronics engineering. Also, basic knowledge which is common in these fields.	Sufficiently acquire and be able to utilize general, common and basic knowledge of electronics engineering.	Acquire and be able to utilize general, common and basic knowledge of electronics engineering, at the standard level.	Marginally acquire and be able to utilize general, common and basic knowledge of electronics engineering.
(1)	Mathematical methods required for professionals in electronics engineering.	Sufficiently acquire and be able to utilize mathematical methods which are required for professionals in electronics engineering.	Acquire and be able to utilize mathematical methods which are required for professionals in electronics engineering, at the standard level.	Marginally acquire and be able to utilize mathematical methods which are required for professionals in electronics engineering.
(2)	Concepts, knowledge and methods which are the basis for studies related to electronic engineering.	Sufficiently acquire and be able to utilize concepts, knowledge and methods which are the basis for studies related to electronics engineering.	Aquire and be able to utilize concepts, knowledge and methods of electronics engineering, at the standard level.	Marginally acquire and be able to utilize concepts, knowledge and methods which are the basis for studies related to electronics engineering.
(3)	Ability to apply basic concepts, knowledge, and methods of electronics engineering to concrete/technical problems.	Acquire and be able to utilize sufficient abilities to apply basic concepts, knowledge and methods of electronics engineering to concrete/technical problems.	Acquire and be able to utilize standard abilities to apply basic concepts, knowledge and methods of electronics engineering to concrete/technical problems.	Acquire and be able to utilize marginal abilities to apply basic concepts, knowledge and methods of electronics engineering to concrete/technical problems.
(4)	Ability to solve practical issues and problems by conducting experiments, using numerical computation methods, and collecting relevant materials.	Acquire and be able to utilize sufficient abilities to solve practical issues and problems by conducting experiments, using mathematical methods, and collecting relevant materials.	Acquire and be able to utilize standard abilities to solve practical issues and problems by conducting experiments, using mathematical methods, and collecting relevant materials.	

Relationships between the evaluation items and class subjects

Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on items in the	Weights ed values of evaluati on items	Weighte d values of evaluati on evalemsd valuesd valuesd valuesd vaof-36 (e)-37 (i)-22 (gh)-6 (t)-28 (e)TJETQBT-0017 Tc404528 Td(ed)Tj-0017 Tc 0017 Tw 0 -128 Td(va)-21 (l)-					

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Curriculum Map of Electronic Devices and Systems

Academic Achievement	1st grade		2nd grade		3rd grade		4th grade	
	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
	<1T>Introduction to University Education	<1T>Introduction to Energy and Information Systems						
	Information Courses							
	CalculusI	CalculusII						
	Linear AlgebraI	Linear AlgebraII						
	Seminar in Basic Mathematics I	Seminar in Basic Mathematics II						
	General Mechanics I	General Mechanics II						
		Experimental Methods and Laboratory Work in Physics I						
		<1T>Introduction to Energy and Information Systems						
		Electric Circuit Theory I						
		Applied Mathematics I	Applied Mathematics II	Synthesis of Applied Mathematics				
			Applied Mathematics III	Engineering Mathematics C				
			Probability and Statistics					
			Programming I	Programming II	Thermodynamics and Statistical Mechanics	Robotics		
			Electromagnetism I	Electromagnetism II	Solid State Physics			
			Exercise of Electromagnetism I	Exercise of Electromagnetism II	Signal Processing Engineering			
			Introduction to Physical Electronics	Quantum Mechanics				
			Introduction to Semiconductor Devices and Circuits	Solid State Physics				
			<1T>Logic System Design	Electric Transient Phenomena				
			Circuit Theory II	Electronic Circuits				
			Control Systems Engineering I	Control Systems Engineering II				
				<3T>Digital Circuit Design				
				<3T>Algorithms and Data Structures				
			Exercise of Electromagnetism I	Electromagnetism II	Electromagnetic Wave Propagation	Surface Science and Nanotechnology		
			<1T>Logic System Design	Exercise of Electromagnetism II	Semiconductor Device Engineering	Optoelectronic Semiconductor Devices		
			Circuit Theory II	Electric Transient Phenomena	Electric and Electronic Measurements	Electronic Material Engineering		
			Control Systems Engineering I	Electronic Circuits	CMOS Logic Circuit Design	Semiconductor Process Engineering		
				Electric Energy Generation and Conversion	Fundamentals of Power Systems	CMOS Integrated Design		
				Control Systems Engineering II	Signal Processing Engineering	Communication Engineering		
				<3T>Digital Circuit Design	Bioelectrical Engineering	<4T>Computer Network		
				<4T>Computer Architecture		<4T>Human Computer Interaction		
				<4T>Databases				
				<3T>Algorithms and Data Structures				
			Basic Experiments in Electrical Engineering I	Basic Experiments in Electrical Engineering II	Experiments in Electrical Engineering (Electronics and System Engineering)	Experiments in Electrical Engineering (Electronics and System Engineering) II		
			Programming I	Programming II				
							Graduation Thesis	Graduation Thesis
	Introductory Seminar for First-Year Students						Graduation Thesis	Graduation Thesis
	Introductory Seminar for First-Year Students						Graduation Thesis	Graduation Thesis
			Basic Experiments in Electrical Engineering I	Basic Experiments in Electrical Engineering II	Experiments in Electrical Engineering (Electronics and System Engineering)	Experiments in Electrical Engineering (Electronics and System Engineering) II		
	<1T>Introduction to University Education	Area Courses						
	Peace Science Courses	Health and Sports Courses						
	Area Courses							
	Health and Sports Courses							
	Basic language I II							
	Basic English UsageI	Basic English UsageII				Technical English	Graduation Thesis	Graduation Thesis
	CommunicationI	Communication II						
	Communication I	Communication II						
				Ex	Liberal Arts Education	Basic Specialized Subjects	Specialized Subjects	Graduation Thesis