

**2017 Course List and Graduation Requirements for International Programs,
Automotive Engineering Program – School of Engineering (for Undergraduate)**

(Major : Electrical Engineering, Electronics, and Information Engineering)

Course Category	Course	Notes (offer Academic Year)	Term	No of Credits	Credits						
					Compulsory	Compulsory Elective	Elective	Minimum Requirement			
Liberal Arts and Sciences Courses	First Year Seminar		I	2	2			2			
	Basic General Education Courses	Language and Culture		12	12			12			
		Health and Sports Science		I	2			2			
		Health and Sports Science: Practicum I		II	1			1			
		Health and Sports Science: Practicum II		III	1			1			
		*2 Basic Courses in Humanities and Social Sciences	History	II	2			2			
			Literature	I	2			2			
			Comparative Studies of Cultures	I	2			2			
			Introduction to Cultural Studies	II	2			2			
		*2 Liberal Education Courses in Humanities and Social Sciences	Culture and Representation	II	2			2			
			Past and Present of Democracy	I	2			2			
			International Society of Globalization Age	I	2			2			
		Liberal Education Courses in Natural Sciences	Biotechnology	I	2			2			
			Modern Biology	II	2			2			
			Science of Materials	III	2			2			
		*2 Liberal Education Courses in Interdisciplinary Fields	Exploration of Japan: From the Outside Looking Inside	II	2			2			
			Introduction to Career Development Theory	I	2			2			
			Preparedness for Imminent Natural Disasters	III	2			2			
			Thinking about Japanese Society in the 21st Century from Gender Perspectives	I	2			2			
			Special Lecture (Studium Generale)	I - II	2			2			
		Basic Courses in Natural Sciences	Calculus I	I	2	2			10		
			Calculus II	II	2	2					
			Linear Algebra I	I	2	2					
			Linear Algebra II	II	2	2					
			Complex Analysis	III	2	2			8		
			Fundamentals of Physics I	I	2	2					
			Fundamentals of Physics II	I	2	2					
			Fundamentals of Physics III	II	2	2					
				Fundamentals of Physics IV	II	2	2			4	
				Fundamentals of Chemistry I	I	2	2				
				Fundamentals of Chemistry II	II	2	2				
				Fundamentals of Biology I	I	2			2		
				Fundamentals of Biology II	II	2			2		
				Fundamentals of Earth Science I	I	2			2		
				Fundamentals of Earth Science II	II	2			2		
				Laboratory in Physics	III	1.5	1.5			1.5	
			Laboratory in Chemistry	II	1.5				1.5		
		Sum for Liberal Arts and Sciences Courses					37.5	0	12	49.5	
	Courses in Specialized Fields	Basic Specialized Courses	Compulsory Courses ①	Computer Software I	I	2	2			36.5	
				Mathematics I and Tutorial	III	4	4				
Mathematics II and Tutorial				III	4	4					
Analytical Dynamics and Tutorial				III	2.5	2.5					
Electrical Circuits Engineering				III	2	2					
Mechanics of Materials and Tutorial				III	3	3					
Thermodynamics and Tutorial				III	2.5	2.5					
Electronic Circuits				IV	2	2					
Electricity and Magnetism				IV	2	2					
Metallic and Ceramic Materials				IV	2	2					
Fluid Mechanics I and Tutorial				IV	2.5	2.5					
Vibration Engineering and Tutorial				IV	3	3					
Control Engineering and Tutorial				V	3	3					
Scientific Measurements				V	2	2					
Elective Courses ②		Fundamental Physics Tutorial I a	I	1				1	6		
		Fundamental Physics Tutorial I b	I	1				1			
		Fundamental Physics Tutorial II a	II	1				1			
		Fundamental Physics Tutorial II b	II	1				1			
		Kinematics of Machines	III	2				2			
		Solid Mechanics	IV	2				2			
		Automobile Chemical Systems I	V	2				2			
		Material Processing	V	2				2			
Compulsory Courses ③		Introduction to Automotive Engineering	I	2	2				26		
		Computer Software II	II	2	2						
		Introduction to Electrical, Electronic and Information Engineering for Automobiles	IV	2	2						
		Vehicle Structures	IV	2	2						
		Design Practice I	IV	1	1						
		Automobile Engineering Laboratory II	VI	2	2						
		Automobile Engineering Laboratory I	V	2	2						
		Design Practice II	V	1	1						
		Power Electronics	V	2	2						
		Graduation Research A	VII	5	5						
		Graduation Research B	VIII	5	5						
		Elective Courses ④	Mathematics Tutorial I a	I	1					1	17.5
			Mathematics Tutorial I b	I	1					1	
			Mathematics Tutorial II a	II	1					1	
Mathematics Tutorial II b			II	1				1			
Analytical Chemistry			V	2				2			
Urban Environment and Transportation System			V	2				2			
Numerical Analysis			V	2				2			
Heat Transfer Engineering	V		2				2				
Tours in Industrial Plants A	IV		0.5				0.5				
Tours in Industrial Plants B	V		0.5				0.5				
Training in Industrial Plants	VI		1				1				
Automobile Chemical Systems II	VI		2				2				
Organic Materials	VII		2				2				
Environment and Recycling	VI		2				2				
Intelligent Transportation Systems	VI		2				2				
Electronic Devices in Automobiles	VI		2				2				
Vehicle Engines and New Propulsion Systems	VI		2				2				
Vehicle Dynamics and Control	VI		2				2				
Vehicle Safety	VII	2				2					
Vehicle Design	VII	2				2					
Related Specialized Courses	Elective Courses ⑤	Scientific and Technical Japanese	VI	2				2	4		
		Business Japanese	VII	2				2			
		Outline of Engineering III	VII	2				2			
		View of Advanced Electrical, Electronic and Information Engineering	VII	2				2			
		Introduction to Civil Engineering and Architecture	VII	2				2			
		Introduction to Chemical and Biological Industries	VIII	2				2			
		Introduction to Physical Science and Engineering	VIII	2			2				
Sum for Courses in Specialized Fields					62.5	0	27.5	90			
Total Sum					100	0	39.5	139.5			

(Important) Please confirm the prerequisite for each subject with syllabus.

*1 Some of the courses on this column are offered in every other year. Please confirm the offering term with the "Liberal Arts and Sciences Class Timetable-Table B" of the said year.

Please refer to the detail of the Term on the page 1 of 'Student Handbook'.

*2 Offering term of the courses in this column may be subject to change.

**Graduation Requirements for International Programs,
Automotive Engineering Program – School of Engineering (for Undergraduate)**

(Majors : Electrical and Electronic Engineering and Information Engineering)

- 1. Liberal Arts and Sciences Courses: A combined total of at least 49.5 credits must be acquired.**
- (1) Basic General Education Courses: A total of at least 16 credits must be acquired, consisting of 2 credits from first year seminar A, 12 credits from Japanese/Languages except English, and at least 2 credits from Health and Sports Science Courses.
 - (2) Basic Courses in Humanities and Social Sciences and Liberal Education Courses in Humanities and Social Sciences: A total of at least 4 course credits must be acquired from these two Course Categories.
 - (3) Liberal Education Courses in Natural Sciences: A total of at least 4 elective course credits must be acquired.
 - (4) Liberal Education Courses in Interdisciplinary Fields: At least 2 elective course credits must be acquired.
 - (5) Basic Courses in Natural Sciences: A total of at least 23.5 credits must be acquired, consisting of 8 compulsory course credits from 4 Fundamentals of Physics courses, a total of at least 10 compulsory course credits from 5 Fundamental Mathematics courses, 1.5 course credits of Laboratory in Physics, and 4 compulsory course credits from Fundamentals of Chemistry I and II.
- 2. Courses in Specialized Fields: A combined total of at least 90 course credits must be acquired from these course categories.**
- (1) Compulsory Courses: A total of 62.5 course credits must be acquired, consisting of a total of 36.5 credits from Compulsory Basic Specialized Courses ① and a total of 26 credits from Compulsory Specialized Courses ③.
 - (2) Elective Courses: A total of at least 27.5 course credits must be acquired, consisting of a total of at least 6 course credits from Basic Specialized Courses ②, a total of at least 17.5 course credits from Elective Specialized Courses ④, and a total of at least 4 course credits from Related Specialized Courses ⑤.

**Requirements for Advancement for International Programs,
Automotive Engineering Program – School of Engineering (for Undergraduate)**

(Majors : Electrical and Electronic Engineering and Information Engineering)

Time When Judgment is Made	Course Categories	Minimum Required Course Credits/Number of Courses	Details
At the End of the First Grade	Basic Courses in Natural Sciences	5 Courses	A minimum of 5 courses from the Basic Courses in Natural Sciences must be acquired.
At the End of the Second Grade	Basic General Education Courses, Basic Courses in Humanities and Social Sciences, Liberal Education Courses in Humanities and Social Sciences, Basic Courses in Natural Sciences, Liberal Education Courses in Natural Sciences, Liberal Education Courses in Interdisciplinary Fields	41 credits	<p>1. Basic General Education Courses: A total of at least 10.5 course credits must be acquired from the Language and Culture Courses: Japanese, German, French, Russian, Chinese, Spanish, or Korean</p> <p>2. Basic Courses in Natural Sciences: A total of at least 17.5 course credits must be acquired from Basic Courses in Natural Sciences, including 1.5 credits of Laboratory in Physics.</p>