

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

Course Category		Course	* Notes (offerd Academic Year)	Term	Credits						
					No of Credits	Compulsory	Compulsory Elective	Elective	Minimum Requirement		
Liberal Arts and Sciences Courses	Basic General Education Courses	First Year Seminar		First Year Seminar A	I	2	2			2	
		Language and Culture		Japanese/Languages except English	I, II	12	12			12	
		Health and Sports Science	Health and Sports Science: Lecture		I	2				2	2
			Health and Sports Science: Practicum I		II	1				1	
	*2 Basic Courses in Humanities and Social Sciences	History		*1	II	2				2	4
			Literature	*1	I	2				2	
			Comparative Studies of Cultures	*1 AY2018	I	2				2	
		*2 Liberal Education Courses in Humanities and Social Sciences	Introduction to Cultural Studies	*1	II	2				2	
			Culture and Representation	*1	II	2				2	
			Past and Present of Democracy	*1 AY2018	I	2				2	
	Liberal Education Courses in Natural Sciences	International Society of Globalization Age	*1	I	2				2		
		Biotechnology		I	2				2	4	
		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	Introduction to Career Development Theory		I	2				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	
			Calculus I		I	2	2				
	Basic Courses in Natural Sciences		Calculus II		II	2	2				10
			Linear Algebra I		I	2	2				
			Linear Algebra II		II	2	2				
			Complex Analysis		III	2	2				
			Fundamentals of Physics I		I	2	2				8
			Fundamentals of Physics II		I	2	2				
			Fundamentals of Physics III		II	2	2				
			Fundamentals of Physics IV		II	2	2				
			Fundamentals of Chemistry I		I	2	2				4
			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
	Courses in Specialized Fields	Basic Specialized Courses	Compulsory Courses ①		Computer Software I	I	2	2			34.5
				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				IV	2	2					
Mechanics of Materials and Tutorial				III	3	3					
Thermodynamics and Tutorial				III	2.5	2.5					
Kinematics of Machines				III	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					
Material Processing				V	2	2					
Elective Courses ②				Fundamental Physics Tutorial I a	I	1				1	
		Fundamental Physics Tutorial I b	I	1				1			
		Fundamental Physics Tutorial II a	II	1				1			
		Fundamental Physics Tutorial II b	II	1				1			
		Electronic Circuits	IV	2				2			
		Solid Mechanics	IV	2				2			
		Automobile Chemical Systems I	V	2				2			
Compulsory Courses ③		Scientific Measurements	V	2				2	21		
		Introduction to Automotive Engineering	I	2	2						
		Vehicle Structures	IV	2	2						
		Design Practice I	IV	1	1						
		Automobile Engineering Laboratory I	V	2	2						
		Design Practice II	V	1	1						
		Automobile Engineering Laboratory II	VI	2	2						
		Design Practice III	VI	1	1						
		Graduation Research A	VII	5	5						
		Graduation Research B	VIII	5	5						
Specialized Courses		Elective Courses ④	Mathematics Tutorial I a		I	1				1	22
			Mathematics Tutorial I b		I	1				1	
			Mathematics Tutorial II a		II	1				1	
			Mathematics Tutorial II b		II	1				1	
			Computer Software II		II	2				2	
			Analytical Chemistry		V	2				2	
			Urban Environment and Transportation System		V	2				2	
			Power Electronics		V	2				2	
			Numerical Analysis		V	2				2	
			Heat Transfer Engineering		V	2				2	
			Fluid Mechanics II		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	5	
		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							55.5	0	33	88.5	
<b>Total Sum</b>							<b>93</b>	<b>0</b>	<b>45</b>	<b>138</b>	

(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 : Mechanical and Aerospace 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 88.5 course credits must be acquired from these course categories.**

- (1) Compulsory Courses: A total of 55.5 course credits must be acquired, consisting of a total of 34.5 credits from Compulsory Basic Specialized Courses ① and a total of 21 credits from Compulsory Specialized Courses ③.
- (2) Elective Courses: A total of at least 33 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 22 course credits from Elective Specialized Courses ④, and a total of at least 5 course credits from Related Specialized Courses ⑤.

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

(Majors : Mechanical and Aerospace 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>