

**Course List and Graduation Requirements for International Programs,  
Automotive Engineering Program – School of Engineering (for Undergraduates Enrolled in October 2018)**

(Major : Mechanical and Aerospace Engineering)

Course Category□		Course	* Notes (offer 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 AY2020	TBD	2			2	4	
		Literature		*1	II	2			2		
		Comparative Studies of Cultures		*1	I	2			2		
		Introduction to Cultural Studies		*1 AY2020	TBD	2			2		
	*2 Liberal Education Courses in Humanities and Social Sciences	Culture and Representation		*1 AY2020	TBD	2			2	4	
		Past and Present of Democracy		*1	I	2			2		
		International Society of Globalization Age		*1 AY2019	I	2			2		
		Biotechnology			I	2			2		
	Liberal Education Courses in Natural Sciences	Modern Biology			II	2			2	4	
		Science of Materials			III	2			2		
		Exploration of Japan: From the Outside Looking Inside			II	2			2		
	*2 Liberal Education Courses in Interdisciplinary Fields	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		
		Special Lecture (Go in Japanese Culture)			III	2			2		
		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					
	Fundamentals of Physics I			I	2	2			8		
	Fundamentals of Physics II			I	2	2					
	Fundamentals of Physics III			II	2	2					
	Basic Courses in Natural Sciences	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	4	
		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	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			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					III	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			
		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		
		Scientific Measurements			V	2			2		
Compulsory Courses ③		Introduction to Automotive Engineering			I	2	2			21	
		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	Mathematics Tutorial I a			I	1				1
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					VI	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				V	2			2			
Vehicle Dynamics and Control			VI	2			2				
Vehicle Safety			VII	2			2				
Vehicle Design			VII	2			2				
Related Specialized Courses	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 Elective 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 Elective 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	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 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.