

**Course List and Graduation Requirements for International Programs,  
Automotive Engineering Program – School of Engineering (for Undergraduates Enrolled in October 2021)**

(Major : Mechanical and Aerospace Engineering)

Course Category			Course	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		
			Health and Sports Science: Practicum II	III	1			1		
	Basic Courses in Humanities and Social Sciences ★	History	II	2			2		4	
		Literature	I	2			2			
		Comparative Studies of Cultures	III	2			2			
		Introduction to Cultural Studies	II	2			2			
	Liberal Education Courses in Humanities and Social Sciences ★	Culture and Representation	II	2			2		4	
		Past and Present of Democracy	III	2			2			
		International Society of Globalization Age	I	2			2			
	Liberal Education Courses in Natural Sciences	Biotechnology	I	2			2		4	
		Modern Biology	II	2			2			
		Science of Materials	III	2			2			
	Liberal Education Courses in Interdisciplinary Fields ★	Exploration of Japan: From the Outside Looking Inside	II	2			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	III	2			2			
		Special Lecture (Studium Generale I)	I	2			2			
		Special Lecture (Studium Generale II)	II	2			2			
		Special Lecture (Go in Japanese Culture)	III	1			1			
		Special Lecture (Summer Camp for General Academic Skills)	IV	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				6		
	Fundamentals of Physics II	I	2	2						
	Fundamentals of Physics III	II	2	2						
	Basic Courses in Natural Sciences	Fundamentals of Chemistry I	I	2	2				4	
		Fundamentals of Chemistry II	II	2	2					
		Fundamentals of Biology I	I	2			2		6	
		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						35.5	0	12
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			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			
		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					
		Elective Courses ④	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		IV	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	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			
Sum for Courses in Specialized Fields						55.5	0	33	88.5	
<b>Total Sum</b>						<b>91</b>	<b>0</b>	<b>45</b>	<b>136</b>	

\*Confirm the prerequisite for each subject with the syllabus.

\*Refer to the details of the Term on the page 3 of "AY2021 Liberal Arts and Sciences Course Registration Guide for International Programs Students"

★Some of the courses on this column are offered in every other year. Confirm the offering term with the "Liberal Arts and Sciences Class Timetable" of the said year.

**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 47.5 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 21.5 credits must be acquired, consisting of 6 compulsory course credits from 3 Fundamentals of Physics courses, 6 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.

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

(Majors : Mechanical and Aerospace Engineering)

Time When Judgment is Made	Course Categories	A Required Minimum Number of Courses/Credits	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>