

**Course List and Graduation Requirements for International Programs,  
Automotive Engineering Program - School of Engineering (for Undergraduates Enrolled in October 2022)**  
(Major : Mechanical and Aerospace Engineering)

Laboratory in Chemistry		Course	Term	Credits				Minimum Requirement			
				No of Credits	Compulsory	Compulsory Elective	Elective				
Liberal Arts and Sciences Courses	Common Basic Courses	Introduction to Skills for Academic Success	Introduction to Skills for Academic Success	I	1	1		1			
		First Year Seminar	First Year Seminar	I	2	2		2			
		Language and Culture	Japanese	Japanese	Fall, Spring	8	8		8		
			Japanese/Second Foreign Languages/English	Japanese/Second Foreign Languages/English	Fall, Spring	6	6		6		
		Health and Sports Science	Health and Sports Science: Lecture	Health and Sports Science: Lecture	I	2			2		
			Exercise and Sports A	Exercise and Sports A	I	1			1		
			Exercise and Sports B	Exercise and Sports B	II	1			1		
	Data Science	Introduction to Data Science (Lecture)	Introduction to Data Science (Lecture)	II	1	1		1			
		Data Science Exercise B	Data Science Exercise B	II	1	1		1			
	Liberal Arts Courses	Contemporary Liberal Arts (CLA)	Humanities and Social Sciences	Introduction to Cultural Studies ★	Spring	2			2		
				Introduction to Political Studies ★	III	2			2		
				Introduction to Economics ★	Spring	2			2		
			Interdisciplinary/Integration of Arts and Sciences	Introduction to Career Development Theory	Introduction to Career Development Theory	Fall	2			2	
				Art and Culture ★	Art and Culture ★	Spring	2			2	
				Gender Studies	Gender Studies	III	2			2	
		Global Liberal Arts		Disaster Prevention and Mitigation	Disaster Prevention and Mitigation	III	2			2	
				Biotechnology	Biotechnology	III	2			2	
				International Development	International Development	IV	2			2	
			International Society in the Age of Globalization ★	International Society in the Age of Globalization ★	Fall	2			2		
			International Studies	International Studies	IV	2			2		
			Exploration of Japan: From the Outside looking Inside	Exploration of Japan: From the Outside looking Inside	Spring	2			2		
			Go in Japanese Culture	Go in Japanese Culture	Fall	2			2		
			Studium Generale A	Studium Generale A	Fall	2			2		
			Studium Generale B	Studium Generale B	Spring	2			2		
			Introduction to Intercultural Competence	Introduction to Intercultural Competence	Fall	2			2		
			Immigration in Japan	Immigration in Japan	IV	2			2		
			Content courses taught in Japanese	Content courses taught in Japanese	-	-			-		
	Problem/Project Based Learning Seminar	Summer Camp for General Academic Skills	Summer Camp for General Academic Skills	VI	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	II	2	2				
				Fundamentals of Physics III	II	2	2				
				Laboratory in Physics	III	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	6		
				Fundamentals of Earth Science I	I	2		2			
				Fundamentals of Earth Science II	II	2		2			
				Laboratory in Chemistry	II	2		2			
				Laboratory in Biology	II	2		2			
	<b>Sum for Liberal Arts and Sciences Courses</b>						<b>41</b>	<b>0</b>	<b>6</b>	<b>47</b>	
Courses in Specialized Fields	Basic Specialized Courses	Compulsory Courses ①	Computer Software I	I	2	2			34.5		
			Mathematics I and Tutorial	Mathematics I and Tutorial	III	4	4				
			Mathematics II and Tutorial	Mathematics II and Tutorial	III	4	4				
			Analytical Dynamics and Tutorial	Analytical Dynamics and Tutorial	III	2.5	2.5				
			Electrical Circuits Engineering	Electrical Circuits Engineering	III	2	2				
			Mechanics of Materials and Tutorial	Mechanics of Materials and Tutorial	III	3	3				
			Thermodynamics and Tutorial	Thermodynamics and Tutorial	III	2.5	2.5				
			Kinematics of Machines	Kinematics of Machines	III	2	2				
			Metallic and Ceramic Materials	Metallic and Ceramic Materials	IV	2	2				
			Fluid Mechanics I and Tutorial	Fluid Mechanics I and Tutorial	IV	2.5	2.5				
			Vibration Engineering and Tutorial	Vibration Engineering and Tutorial	IV	3	3				
			Control Engineering and Tutorial	Control Engineering and Tutorial	V	3	3				
			Material Processing	Material Processing	V	2	2				
			Elective Courses ②		Fundamental Physics Tutorial I a	Fundamental Physics Tutorial I a	I	1			
		Fundamental Physics Tutorial I b		Fundamental Physics Tutorial I b	I	1			1		
		Fundamental Physics Tutorial II a		Fundamental Physics Tutorial II a	II	1			1		
		Electronic Circuits		Electronic Circuits	IV	2			2		
		Solid Mechanics		Solid Mechanics	IV	2			2		
		Automobile Chemical Systems I		Automobile Chemical Systems I	V	2			2		
		Scientific Measurements	Scientific Measurements	V	2			2			
	Specialized Courses	Compulsory Courses ③		Introduction to Automotive Engineering	I	2	2			21	
				Vehicle Structures	Vehicle Structures	IV	2	2			
				Design Practice I	Design Practice I	IV	1	1			
				Automobile Engineering Laboratory I	Automobile Engineering Laboratory I	V	2	2			
				Design Practice II	Design Practice II	V	1	1			
				Automobile Engineering Laboratory II	Automobile Engineering Laboratory II	VI	2	2			
				Design Practice III	Design Practice III	VI	1	1			
				Graduation Research A	Graduation Research A	VII	5	5			
			Graduation Research B	Graduation Research B	VIII	5	5				
		Elective Courses ④		Mathematics Tutorial I a	Mathematics Tutorial I a	I	1			1	
				Mathematics Tutorial I b	Mathematics Tutorial I b	I	1			1	
				Mathematics Tutorial II a	Mathematics Tutorial II a	II	1			1	
				Mathematics Tutorial II b	Mathematics Tutorial II b	II	1			1	
				Computer Software II	Computer Software II	IV	2			2	
	Analytical Chemistry		Analytical Chemistry	V	2			2			
	Urban Environment and Transportation System		Urban Environment and Transportation System	V	2			2			
	Power Electronics		Power Electronics	V	2			2			
	Numerical Analysis		Numerical Analysis	V	2			2			
	Heat Transfer Engineering		Heat Transfer Engineering	VI	2			2			
	Fluid Mechanics II		Fluid Mechanics II	V	2			2			
	Tours in Industrial Plants A		Tours in Industrial Plants A	IV	0.5			0.5			
	Tours in Industrial Plants B		Tours in Industrial Plants B	V	0.5			0.5			
	Training in Industrial Plants		Training in Industrial Plants	VI	1			1			
	Automobile Chemical Systems II		Automobile Chemical Systems II	VI	2			2			
Related Specialized Courses	Elective Courses ⑤			Organic Materials	VII	2			2		
			Environment and Recycling	Environment and Recycling	VI	2			2		
			Intelligent Transportation Systems	Intelligent Transportation Systems	VI	2			2		
			Electronic Devices in Automobiles	Electronic Devices in Automobiles	VI	2			2		
			Vehicle Engines and New Propulsion Systems	Vehicle Engines and New Propulsion Systems	V	2			2		
			Vehicle Dynamics and Control	Vehicle Dynamics and Control	VI	2			2		
			Vehicle Safety	Vehicle Safety	VII	2			2		
			Vehicle Design	Vehicle Design	VII	2			2		
			Scientific and Technical Japanese	Scientific and Technical Japanese	VI	2			2		
			Business Japanese	Business Japanese	VII	2			2		
<b>Sum for Courses in Specialized Fields</b>						<b>55.5</b>	<b>0</b>	<b>33</b>	<b>88.5</b>		
<b>Total Sum</b>						<b>96.5</b>	<b>0</b>	<b>39</b>	<b>135.5</b>		

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

★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)  
(Major : Mechanical and Aerospace Engineering)**

**1. Liberal Arts and Sciences Courses: A combined total of at least 47 credits must be acquired.**

(1) Common Basic Courses:

A total of at least 21 credits must be acquired, consisting of 1 credit of Introduction to Skills for Academic Success, 2 credits of First Year Seminar, 14 credits from "Language and Culture", at least 2 credits each of Lecture and Exercise for Health and Sports Science, and 1 credit each of Lecture and Exercise for Data Science.

(2) Liberal Arts Courses:

A total of 4 credits must be acquired, consisting of 2 credits from Contemporary Liberal Arts (Humanities and Social Science and Interdisciplinary/Integration of Arts and Sciences), and 2 credits from Global Liberal Arts Courses or Contemporary Liberal Arts (Humanities and Social Science and Interdisciplinary/Integration of Arts and Sciences) or Problem/Project Based Learning Seminar.

(3) Basic Courses in Natural Sciences:

A total of at least 22 credits must be acquired, consisting a total of at least 10 credits from Calculus I, II, Linear Algebra I, II or Complex Analysis, a total of 8 credits from Fundamentals of Physics I, II, III and Laboratory in Physics, a total of 4 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)  
(Major : Mechanical and Aerospace Engineering)**

Assesment Year	Course Categories	Minimum Courses/Credits Required	Requirements
At the End of the Second Year	Common Basic Courses, Liberal Arts Courses, Basic Courses for Specialized Fields	40 credits	1. Common Basic Courses Must earn a total of at least 12 "Language and Culture" credits from Japanese, English or Second Foreign Languages. *Please note that if you choose Second Foreign Lanugages for Compulsory Elective (Japanese/English/Second Foreign Languages) credits, you must obtain at least 4 credits in each language from German, French, Russian, Chinese, Spanish or Korean for graduation. 2. Basic Courses in Natural Sciences Must earn at least 18 credits from Basic Courses in Natural Sciences.