Curriculum Framework for Automotive Mechatronics Engineering Technology

No.	Course Code	Area / Course Title	Total Cr.	Credit Components					Sem.	Prior Code	Prereq. Code
				Lec.	Prac./ Lab	Disc./Assign.	Proj.	Intern.			
9.1		**General Education**	**50**	**48**	**2**	**0**	**0**	**0**			
9.1.1		**Social Sciences and Humanities**	**19**	**19**	**0**	**0**	**0**	**0**			
9.1.1.1		***Compulsory***	**15**	**15**	**0**	**0**	**0**	**0**			
1.	LP6010	Marxist-Leninist Philosophy	3	3	0	0	0	0	1		
2.	LP6025	Marxist-Leninist Political Economy	2	2	0	0	0	0	3		
3.	LP6026	Scientific Socialism	2	2	0	0	0	0	4		
4.	LP6027	History of the Communist Party of Vietnam	2	2	0	0	0	0	7		
5.	LP6004	Ho Chi Minh Thought	2	2	0	0	0	0	6		
6.	LP6021	Introduction to Law	2	2	0	0	0	0	7		
7.	BS6046	Intercultural Communication	2	2	0	0	0	0	2		
9.1.1.2		***Electives (select one course from Group 1 and one from Group 2)***	**4**	**4**	**0**	**0**	**0**	**0**			
Tc1		**Group 1**									
8.	BS6047	*Introduction to Scientific Research*	2	2	0	0	0	0	*2*		
9.	SE6257	*Project Management*	2	2	0	0	0	0	*2*		
10.	BS6048	*Labor Relations and Employment*	2	2	0	0	0	0	*2*		
11.	BS6049	*Humans and the Environment*	2	2	0	0	0	0	*2*		

12.	SE6218	*Introduction to Economics*	2	2	0	0	0	0	*2*		
13.	SM6186	*Professional Work Practices*	2	2	0	0	0	0	*2*		
Tc2		**Group 2**									
14.	BS6050	*Introduction to Music*	2	2	0	0	0	0	**2**		
15.	BS6051	*Introduction to Art Studies*	2	2	0	0	0	0	**2**		
16.	BS6052	*Introduction to Fine Arts*	2	2	0	0	0	0	**2**		
9.1.2	**Select one of five foreign language programs**		**10**	**10**	**0**	**0**	**0**	**0**			
		Chinese Language Program									
17.	SL6347	*Chinese 1*	5	5	0	0	0	0	3		
18.	SL6348	*Chinese 2*	5	5	0	0	0	0	4		
		Korean Language Program									
19.	SL6351	*Korean 1*	5	5	0	0	0	0	3		
20.	SL6352	*Korean 2*	5	5	0	0	0	0	4		
		Japanese Language Program									
21.	SL6349	*Japanese 1*	5	5	0	0	0	0	3		
22.	SL6350	*Japanese 2*	5	5	0	0	0	0	4		
		English Language Program									
23.	SL6325	*English for Mechanical and Automotive Engineering 1*	5	5	0	0	0	0	3		
24.	SL6326	*English for Mechanical and Automotive Engineering 2*	5	5	0	0	0	0	4		
		German Language Program									
25.	FL6582	*German 1*	5	5	0	0	0	0	3		
26.	FL6583	*German 2*	5	5	0	0	0	0	4		
9.1.3		**Natural Sciences**	**18**	**17**	**1**	**0**	**0**	**0**			
9.1.3.1		***Compulsory***	**12**	**11**	**1**	**0**	**0**	**0**			
27.	BS6002	Calculus	3	3	0	0	0	0	1		

28.	BS6040	Engineering Mathematics	3	3	0	0	0	0	5		
29.	BS6042	Probability and Statistics	3	3	0	0	0	0	6		
30.	BS6027	General Physics	3	2	1	0	0	0	1		
Tc3		**Group 3**	6	6	0	0	0	0			
31.	BS6039	*Numerical Methods*	*3*	*3*	*0*	*0*	*0*	*0*	*6*		
32.	SC6221	*Numerical Methods in Programming*	*3*	*3*	*0*	*0*	*0*	*0*	*6*		
33.	BS6041	*Physics II*	*3*	*3*	*0*	*0*	*0*	*0*	*5*		
34.	SC6223	*Discrete Mathematics*	*3*	*3*	*0*	*0*	*0*	*0*	*5*		
35.	CT6279	*General Chemistry*	*3*	*1*	*2*	*0*	*0*	*0*	*5*		
9.1.4		**Free Electives**									
9.1.4.1		***Compulsory***									
36.	SC6201	Digital Competency Development	**3**	2	1	0	0	0	6		
9.1.5		**National Defense and Security Education**	**8.5**						1,2		
		In accordance with Circular No. 05/2020/TT-BGDDT dated March 18, 2020									
9.1.6		**Physical Education**	**4**						1,2,3		
		In accordance with the Physical Education Training Regulations promulgated under Decision No. ..../QD-DHCN dated ../.../2024, of Hanoi University of Industry									
9.2		**Professional Education**	**85**	**51**	**13**	**4**	**10**	**7**			
9.2.1		**Field Foundations**	**11**	**8**	**2**	**1**	**0**	**0**			
9.2.1.1		**Compulsory**	**11**	**8**	**2**	**1**	**0**	**0**			
37.	SM6050	Engineering Drawing	3	2	*0*	1	0	0	2		
38.	SC6208	Programming Techniques	3	2	*1*	0	0	0	3		
39.	SM6176	Industrial Safety and Environment	2	2	*0*	0	0	0	2		
40.	EE6117	Electrical and Electronic Engineering	3	2	*1*	0	0	0	1		
9.2.2		**Discipline Group Foundations**	**17**	**13**	**2**	**2**	**0**	**0**			

9.2.2.1		**Compulsory**	**17**	**13**	**2**	**2**	**0**	**0**			
41.	SM6178	Engineering Mechanics	3	3	0	0	0	0	2		
42.	SM6055	Strength of Materials	2	2	0	0	0	0	3		
43.	SM6048	Introduction to Engineering	2	2	0	0	0	0	1		
44.	SM6138	Basic Mechanical Engineering Practice	2	0	2	0	0	0	1		
45.	SM6049	Introduction to Engineering Project	1	0	0	1	0	0	1		
46.	SM6058	Theory of Mechanisms and Machine Elements	2	2	0	0	0	0	4		
47.	SM6001	General Mechanical Engineering	2	2	0	0	0	0	2		
48.	SM6205	Fundamentals of Automatic Systems	3	2	0	1	0	0	3		
9.2.3		**Major Foundations**	**17**	**12**	**5**	**0**	**0**	**0**			
9.2.3.1		**Compulsory**	**11**	**8**	**3**	**0**	**0**	**0**			
49.	SM6059	Tolerances and Measurement Techniques	2	2	0	0	0	0	4		
50.	SM6195	Computer-Aided Design (CAD)	2	0	2	0	0	0	2		
51.	SM6153	Tolerances and Measurement Practice	1	0	1	0	0	0	4		MC6007
52.	SM6096	Sensors and Measurement Systems	2	2	0	0	0	0	3		
53.	SM6121	Actuators and Control	2	2	0	0	0	0	3		
54.	SM6142	Principles of Internal Combustion Engines	2	2	0	0	0	0	3		BS6027
9.2.3.2		***Elective Courses (select two courses from Group 4 and one course from Group 5)***	**6**	**4**	**2**	**0**	**0**	**0**			
Tc4		**Group 4**	4	4	0	0	0	0			
55.	SM6025	Internal Combustion Engine Engineering	2	2	0	0	0	0	4		
56.	SM6026	Fundamentals of Automotive Engineering	2	2	0	0	0	0	4		
57.	SM6027	Fundamentals of New Energy Vehicles	2	2	0	0	0	0	4		
Tc5		**Group 5**	2	0	2	0	0	0			
58.	SM6172	*Automotive Electrical Circuit Analysis*	2	0	2	0	0	0	3		

59.	SM6171	*Automotive Electronic Circuit Assembly Practice*	2	0	2	0	0	0	3		
9.2.4		**Specialization**	**23**	**16**	**4**	**1**	**2**	**0**			
9.2.4.1		***Compulsory***	**16**	**10**	**4**	**0**	**2**	**0**			
60.	SM6028	Electric and Hybrid Vehicles	2	2	0	0	0	0	5		SM6142
61.	SM6029	Automotive Electrical and Electronic Systems	2	2	0	0	0	0	5		EE6117
62.	SM6030	Basic Engine and Automotive Practice	2	0	2	0	0	0	4		MC6007
63.	SM6031	Automotive Mechatronic Systems Design	2	2	0	0	0	0	5		EE6117
64.	SM6173	Automotive Mechatronics Specialization Project	2	0	0	0	2	0	6		SM6029
65.	SM6174	Automotive Mechatronics Laboratory	2	0	2	0	0	0	7		SM6153
66.	SM6032	Automotive Mechatronic System Diagnostics and Repair	2	2	0	0	0	0	7		SM6029
67.	SM6168	Vehicle Inspection and Operation Techniques	2	2	0	0	0	0	7		SM6153
9.2.4.2		***Electives (select one course each from Groups 6, 7 and 8)***	**7**	**6**	**0**	**1**	**0**	**0**			
Tc6		**Group 6**	3	2	0	1	0	0			
68.	SM6033	*Electric and Hybrid Vehicle Design and Calculations*	3	2	0	1	0	0	7		
69.	SM6169	*Automotive Design and Engineering Calculations*	3	2	0	1	0	0	7		
70.	SM6170	*Engine Design and Calculations*	3	2	0	1	0	0	7		

Tc7		**Group 7**	2	2	0	0	0	0			
71.	SM6034	*Autosar*	2	2	0	0	0	0	7		
72.	SM6144	*Autonomous Vehicles and Intelligent Transportation Systems*	2	2	0	0	0	0	7		
73.	SM6175	*In-Vehicle Multimedia Technology*	2	2	0	0	0	0	7		
Tc8		**Group 8**	2	2	0	0	0	0			
74.	SM6035	*In-Vehicle Communication Networks*	2	2	0	0	0	0	7		
75.	SM6036	*Advanced Driver Assistance Systems (ADAS)*	2	2	0	0	0	0	7		
9.3		**Free Electives**	**2**	**2**	**0**	**0**	**0**	**0**			
9.3.1		***Compulsory***	2	2	0	0	0	0			
76.	SE6209	Innovation and Entrepreneurial Thinking	2	2	0	0	0	0	6		
9.3.2		**Elective** **(Select one of five foreign language program groups)**	0	0	0	0	0	0			
		Chinese Language Program									
77.	FL6560	*Basic Chinese 1*	0						1		
78.	FL6561	*Basic Chinese 2*	0						2		
		Korean Language Program									
79.	FL6564	*Basic Korean 1*	0						1		
80.	FL6565	*Basic Korean 2*	0						2		
		Japanese Language Program									
81.	FL6562	*Basic Japanese 1*	0						1		
82.	FL6563	*Basic Japanese 2*	0						2		
		German Language Program									
83.	FL6580	*Basic German 1*	0						1		
84.	FL6581	*Basic German 2*	0						2		
		English Language Program									

85.	SL6311	*Basic English for Mechanical and Automotive Engineering 1*	0						1		
86.	SL6312	*Basic English for Mechanical and Automotive Engineering 2*	0						2		
9.4		**Industry Internship and Graduation Project/Thesis**	**15**	**0**	**0**	**0**	**8**	**7**			
87.	SM6037	Graduation Project (Automotive Mechatronics)	8	0	0	0	8	0	8		SM6173 SM6031
88.	SM6038	Automotive Mechatronics Internship	7	0	0	0	0	7	8		SM6030