Curriculum Framework for Vehicle and New Energy Engineering

No.	Course Code	Curriculum Component / Course Title	Total Credits	Credit Distribution					Semester	Prerequisite Course Code
				Lec.	Prac. / Lab	Sem./ Asgn.	Proj.	Intern.		
9,1		**General Education**	**59**	**56**	**3**	**0**	**0**	**0**		
9.1.1		**Social Sciences and Humanities**	**19**	**19**	**0**	**0**	**0**	**0**		
9.1.1.1		***Compulsory Courses***	**15**	**15**	**0**	**0**	**0**	**0**		
1	LP6010	Marxist-Leninist Philosophy	3	3	0	0	0	0	4	
2	LP6025	Marxist-Leninist Political Economy	2	2	0	0	0	0	5	
3	LP6026	Scientific Socialism	2	2	0	0	0	0	5	
4	LP6027	History of the Communist Party of Vietnam	2	2	0	0	0	0	6	
5	LP6022	Ho Chi Minh Thought	2	2	0	0	0	0	7	
6	LP6021	Fundamentals of Law	2	2	0	0	0	0	7	
7	BS6046	Intercultural Communication	2	2	0	0	0	0	6	
9.1.1.2		***Elective Courses (Select one course from Group 1 and one from Group 2)***	***4***	***4***	***0***	***0***	***0***	***0***		
TCĐL1		**Group 1**	**2**	**2**	**0**	**0**	**0**	**0**		
1	BS6021	Humans and the Environment	2	2	0	0	0	0	3	
2	BS6019	Introduction to Scientific Research	2	2	0	0	0	0	3	
3	BS6020	Labor Relations and Employment	2	2	0	0	0	0	3	
4	BM6091	Project Management	2	2	0	0	0	0	3	
5	BM6001	Introduction to Economics	2	2	0	0	0	0	3	
6	ME6060	Professional Work Practices	2	2	0	0	0	0	3	
TCĐL2		**Group 2**	**2**	**2**	**0**	**0**	**0**	**0**		
1	BS6050	Introduction to Music	2	2	0	0	0	0	6	
2	BS6051	Introduction to Arts	2	2	0	0	0	0	6	
3	BS6052	Introduction to Fine Arts	2	2	0	0	0	0	6	
9.1.2		**Select one of four foreign language course sequences**	**10**	**10**	**0**	**0**	**0**	**0**		
		Chinese Language Course Sequence								
1	FL6339	*Chinese 1*	5	5	0	0	0	0	4	
2	FL6340	*Chinese 2*	5	5	0	0	0	0	5	
		Korean Language Course Sequence								
1	FL6335	*Korean 1*	5	5	0	0	0	0	4	
2	FL6336	*Korean 2*	5	5	0	0	0	0	5	
		German Language Course Sequence								
1	FL6582	*German 1*	5	5	0	0	0	0	4	
2	FL6583	*German 2*	5	5	0	0	0	0	5	
		Japanese Language Course Sequence								
1	FL6337	*Japanese 1*	5	5	0	0	0	0	4	
2	FL6338	*Japanese 2*	5	5	0	0	0	0	5	
		English Language Course Sequence								
1	SL6325	*English for Mechanical and Automotive Engineering 1*	5	5	0	0	0	0	4	
2	SL6326	*English for Mechanical and Automotive Engineering 2*	5	5	0	0	0	0	5	
9.1.3		**Natural Sciences**	**27**	**25**	**2**	**0**	**0**	**0**		
9.1.3.1		***Compulsory Courses***	***24***	***22***	***2***	***0***	***0***	***0***		

No.	Course Code	Curriculum Component / Course Title	Total Credits	Credit Distribution					Semester	Prerequisite Course Code
				Lec.	Prac. / Lab	Sem./ Asgn.	Proj.	Intern.		
1	BS6002	Calculus	3	3	0	0	0	0	1	
2	BS6027	General Physics	3	2	1	0	0	0	1	
3	CT6279	General Chemistry	3	2	1	0	0	0	3	
4	BS6004	Engineering Mathematics	3	3	0	0	0	0	5	
5	BS6001	Linear Algebra	3	3	0	0	0	0	2	
6	BS6042	Probability and Statistics	3	3	0	0	0	0	5	
7	SM6190	Engineering Thermodynamics	2	2	0	0	0	0	1	
8	SM6061	Fundamentals of Hydraulics	2	2	0	0	0	0	3	
9	SM6017	Industrial Statistics	2	2	0	0	0	0	7	
9.1.3.2	**TCĐL3**	***Group 3 Electives (Select one course from Group 3)***	***3***	***3***	***0***	***0***	***0***	***0***		
1	BS6039	Numerical Methods	3	3	0	0	0	0	**6**	
2	BS6045	Mathematical Modeling	3	3	0	0	0	0	**6**	
3	SC6223	Discrete Mathematics	3	3	0	0	0	0	**6**	
9.1.4		**National Defense and Security Education**	**8,5**							
		In accordance with Circular No. 05/2020/TT-BGDDT dated March 18, 2020								
9.1.5		**Physical Education**	**4**							
		In accordance with the Physical Education regulations issued under Decision No. 957/QD-DHCN dated August 8, 2016, of Hanoi University of Industry								
9.1.6	SC6201	Digital Competency Development	3	2	1	0	0	0	3	
9,2		**Professional Education**	**76**	**41**	**14**	**1**	**13**	**7**		
9.2.1		**Foundational Courses for the Broad Field**	**11**	**9**	**2**	**0**	**0**	**0**		
9.2.1.1		***Compulsory Courses***	**11**	**9**	**2**	**0**	**0**	**0**		
1	SM6050	Technical Drawing	3	3	0	0	0	0	2	
3	SC6208	Programming Techniques	3	2	1	0	0	0	3	
2	SM6176	Industrial Safety and Environment	2	2	0	0	0	0	4	
4	SEE6164	Electrical and Electronic Engineering	3	2	1	0	0	0	2	
9.2.2		**Foundational Courses for the Discipline Group**	**17**	**14**	**2**	**0**	**1**	**0**		
9.2.2.1		***Compulsory Courses***	**17**	**14**	**2**	**0**	**1**	**0**		
1	SM6178	Engineering Mechanics	3	3	0	0	0	0	2	
2	SM6055	Strength of Materials	2	2	0	0	0	0	3	BS6002
3	SM6048	Introduction to Engineering	2	2	0	0	0	0	1	
4	SM6138	Basic Mechanical Engineering Practice	2	0	2	0	0	0	1	
5	SM6049	Introduction to Engineering Project	1	0	0	0	1	0	3	
6	SM6058	Theory of Machines and Machine Elements	2	2	0	0	0	0	3	
7	SM6001	Fundamentals of Mechanical Engineering	2	2	0	0	0	0	2	
8	SM6209	New Energy Vehicle Structure	3	3	0	0	0	0	3	
9.2.3		**Major Foundation Courses**	**11**	**8**	**3**	**0**	**0**	**0**		
9.2.3.1		***Compulsory Courses***	**9**	**6**	**3**	**0**	**0**	**0**		
1	SM6059	Tolerances and Metrology	2	2	0	0	0	0	4	
2	SM6195	CAD	2	0	2	0	0	0	4	
3	SM6153	Tolerances and Metrology Practice	1	0	1	0	0	0	4	SM6138

No.	Course Code	Curriculum Component / Course Title	Total Credits	Credit Distribution					Semester	Prerequisite Course Code
				Lec.	Prac. / Lab	Sem./ Asgn.	Proj.	Intern.		
4	SM6210	Basic Electrical and Electronic Systems in New Energy Vehicles	2	2	0	0	0	0	4	
5	SM6211	Battery Technology for New Energy Vehicles	2	2	0	0	0	0	**6**	
9.2.3.2	**TC4**	***Elective Courses (Select 2 credits)***	**2**	**2**	**0**	**0**	**0**	**0**		
1	SM6127	Applied Python Programming	2	2	0	0	0	0	**5**	
2	SM6213	Microcontroller Applications in Transport Vehicles	2	2	0	0	0	0	**5**	
9.2.4		**Major-Specific Courses**	**20**	**15**	**4**	**0**	**1**	**0**		
9.2.4.1		***Compulsory Courses***	***16***	***11***	***4***	***0***	***1***	***0***		
1	SM6214	Theory of New Energy Vehicles	2	2	0	0	0	0	4	
2	SM6215	New Energy Vehicle Inspection, Disassembly and Assembly Practice	2	0	2	0	0	0	**5**	
3	SM6216	New Energy Vehicle Dynamics	2	2	0	0	0	0	6	SM6209
4	SM6217	New Energy Vehicle Modeling and Simulation	1	0	1	0	0	0	6	SM6209
5	SM6218	New Energy and Energy-Saving Technologies	2	2	0	0	0	0	6	
6	SM6219	New Energy Vehicle Design	2	2	0	0	0	0	**7**	SM6209
7	SM6220	Electrical and Electronic Control Systems in New Energy Vehicles	2	2	0	0	0	0	**7**	SM6210
8	SM6221	New Energy Vehicle Engineering Project	1	0	0	0	1	0	**7**	SM6214
9	SM6222	New Energy Vehicle Laboratory	1	0	1	0	0	0	**7**	SM6153
10	SM6223	Special Topics in New Energy Vehicle Engineering	1	1	0	0	0	0	7	SM6214
9.2.4.2	**TC5**	***Elective Courses (Select up to 4 credits)***	***4***	***4***	***0***	***0***	***0***	***0***		
1	SM6224	New Energy Vehicle Testing and Evaluation	2	2	0	0	0	0	**7**	
2	SM6225	Safety Systems in New Energy Vehicles	2	2	0	0	0	0	**7**	
3	SM6226	NVH Control Technologies in New Energy Vehicles	2	2	0	0	0	0	**7**	
4	SM6227	Intelligent Vehicles	2	2	0	0	0	0	7	
9,3	**AA6040**	**Innovation and Entrepreneurial Mindset**	**2**	**2**	**0**	**0**	**0**	**0**	6	
9,4		**Industry Internship and Graduation Project/Thesis**	**15**	**0**	**0**	**0**	**8**	**7**		
1	SM6228	Industry Internship (VEE)	7	0	0	0	0	7	8	
2	SM6229	Graduation Project (VEE)	8	0	0	0	8	0	8	SM6209
		Total	**135**	97	17	1	13	7		