Curriculum Framework for Mechatronics Engineering Technology

No.	Course Code	Area / Course Title	Total Cr.	Credit Components					Se
				Lec.	Prac./Lab	Disc./Assign.	Proj.	Intern.	
9.1		**General Education**							
9.1.1		**Political Theory and Law**	**13**						
9.1.1.1		**Compulsory**	**13**	**13**	**0**	**0**	**0**	**0**	
1	LP6021	Introduction to Law	2	2	0	0	0	0	7
2	LP6022	Ho Chi Minh Thought	2	2	0	0	0	0	4
3	LP6010	Marxist-Leninist Philosophy	3	3	0	0	0	0	1
4	LP6025	Marxist-Leninist Political Economy	2	2	0	0	0	0	2
5	LP6026	Scientific Socialism	2	2	0	0	0	0	3
6	LP6027	History of the Communist Party of Vietnam	2	2	0	0	0	0	6
9.1.2		**Natural Sciences**	**18**						
9.1.2.1		**Compulsory**	**12**	**11**	**1**	**0**	**0**	**0**	
7	BS6002	Calculus	3	3	0	0	0	0	1
8	BS6040	Engineering Mathematics	3	3	0	0	0	0	2
9	BS6042	Probability and Statistics	3	3	0	0	0	0	3
10	BS6027	General Physics	3	2	1	0	0	0	1
9.1.2.2		**Elective**	**6**						
TC1		**TcKHTN**	**6**						
11	BS6037	Linear Algebra	3	3	0	0	0	0	2
12	CT6279	General Chemistry	3	2	1	0	0	0	2
13	SC6221	Numerical Methods in Programming	3	3	0	0	0	0	2
14	BS6039	Numerical Methods	3	3	0	0	0	0	2
15	SC6223	Discrete Mathematics	3	3	0	0	0	0	3
16	SC6202	Optimization	3	2	1	0	0	0	3

17	BS6041	Physics II	3	3	0	0	0	0	3
9.1.3		**Social Sciences and Humanities**	**6**						
9.1.3.1		**Compulsory**	**2**	**2**	**0**	**0**	**0**	**0**	
18	BS6046	Intercultural Communication	2	2	0	0	0	0	2
9.1.3.2		**Elective**	**4**	**4**	**0**	**0**	**0**	**0**	
TC1		**TcKHNV1**	**2**	**2**	**0**	**0**	**0**	**0**	
19	SE6218	Introduction to Economics	2	2	0	0	0	0	6
20	SM6186	Professional Work Practices	2	2	0	0	0	0	6
21	BS6047	Introduction to Scientific Research	2	2	0	0	0	0	6
22	BS6048	Labor Relations and Employment	2	2	0	0	0	0	6
23	BS6049	Humans and the Environment	2	2	0	0	0	0	6
24	SE6257	Project Management	2	2	0	0	0	0	6
TC2		**TcKHNV2**	**2**	**2**	**0**	**0**	**0**	**0**	
25	BS6050	Introduction to Music	2	2	0	0	0	0	7
26	BS6051	Introduction to Art Studies	2	2	0	0	0	0	7
27	BS6052	Introduction to Fine Arts	2	2	0	0	0	0	7
9.1.4		**Foreign Languages**	**10**	**10**	**0**	**0**	**0**	**0**	
9.1.4.1		**Compulsory**	**0**	**0**	**0**	**0**	**0**	**0**	
9.1.4.2		**Elective**	**10**	**10**	**0**	**0**	**0**	**0**	
TC1		**TcNN1**	**10**	**10**	**0**	**0**	**0**	**0**	
28	SL6325	English for Mechanical and Automotive Engineering 1	5	5	0	0	0	0	4
39	SL6326	English for Mechanical and Automotive Engineering 2	5	5	0	0	0	0	5
TC2		**TcNN2**	**10**	**10**	**0**	**0**	**0**	**0**	
30	SL6347	Chinese 1	5	5	0	0	0	0	4
31	SL6348	Chinese 2	5	5	0	0	0	0	5
TC3		**TcNN3**	**10**	**10**	**0**	**0**	**0**	**0**	

32	SL6349	Japanese 1	5	5	0	0	0	0	4
33	SL6350	Japanese 2	5	5	0	0	0	0	5
TC4		**TcNN4**	**10**	**10**	**0**	**0**	**0**	**0**	
34	SL6351	Korean 1	5	5	0	0	0	0	4
35	SL6352	Korean 2	5	5	0	0	0	0	5
TC5		**TcNN5**	**10**	**10**	**0**	**0**	**0**	**0**	
35	FL6582	German 1	5	5	0	0	0	0	4
37	FL6583	German 2	5	5	0	0	0	0	5
9.1.5		**Digital Technology and Applications**	**3**	**2**	**1**	**0**	**0**	**0**	
9.1.5.1		**Compulsory**	**3**	**2**	**1**	**0**	**0**	**0**	
38	SC6201	Digital Competency Development	3	2	1	0	0	0	6
9.2		**Professional Education**	**85**						
9.2.1		**Field Foundational Knowledge**	**11**	**9**	**2**	**0**	**0**	**0**	
9.2.1.1		**Compulsory**	**11**	**9**	**2**	**0**	**0**	**0**	
39	SM6050	Engineering Drawing	3	3	0	0	0	0	1
40	SEE6164	Electrical and Electronic Engineering	3	2	1	0	0	0	2
41	SC6208	Programming Techniques	3	2	1	0	0	0	2
42	SM6176	Industrial Safety and Environment	2	2	0	0	0	0	3
9.2.2		**Discipline Group Foundational Knowledge**	**10**	**7**	**2**	**0**	**1**	**0**	
9.2.2.1		**Compulsory**	**12**	**8**	**3**	**0**	**1**	**0**	
43	SM6138	Basic Mechanical Engineering Practice	2	0	2	0	0	0	1
44	SM6178	Engineering Mechanics	3	3	0	0	0	0	2
45	SM6048	Introduction to Engineering	2	2	0	0	0	0	2
46	SM6049	Introduction to Engineering Project	1	0	0	0	1	0	2
47	SM6055	Strength of Materials	2	2	0	0	0	0	3
9.2.3		**Major Foundational Knowledge**	**15**						

9.2.3.1		**Compulsory**	**12**	**8**	**3**	**1**	**0**	**0**	
48	SM6001	General Mechanical Engineering	2	2	0	0	0	0	1
49	SM6059	Tolerances and Measurement Techniques	2	2	0	0	0	0	3
50	SM6153	Tolerances and Measurement Practice	1	0	1	0	0	0	3
51	SM6195	Computer-Aided Design (CAD)	2	0	2	0	0	0	4
52	SM6205	Fundamentals of Automatic Systems	3	2	0	1	0	0	3
53	SM6058	Theory of Mechanisms and Machine Elements	2	2	0	0	0	0	4
9.2.3.2		**Elective**	**3**						
		TcCSN	**3**						
54	SM6116	Data Structures and Applied Algorithms	3	2	0	1	1	0	4
55	SC6211	Object-Oriented Programming	3	2	1	0	0	0	4
56	SEE6180	Microprocessors and Computer Architecture	3	2	1	0	0	0	4
57	SEE6181	Digital Signal Processing	3	2	1	0	0	0	4
9.2.4		**Specialized Knowledge**	**32**						
9.2.4.1		**Compulsory**	**28**	**14**	**8**	**2**	**4**		
58	SM6096	Sensors and Measurement Systems	2	2	0	0	0	0	4
59	SM6118	Sensors and Measurement Systems Laboratory	1	0	1	0	0	0	4
60	SM6121	Actuators and Control	2	2	0	0	0	0	5
61	SM6184	Measurement and Control Course Project	2	0	0	0	2	0	5
62	SM6119	Hydraulic and Pneumatic Automation Systems	2	2	0	0	0	0	4
63	SM6122	Robotics Engineering	2	2	0	0	0	0	5
64	SM6206	Modeling and Simulation of Mechatronic Systems	3	2	0	1	0	0	5
65	SM6120	Hydraulic and Pneumatic Automation Systems Practice	1	0	1	0	0	0	5
66	SM6123	Automation Engineering	2	2	0	0	0	0	5
67	SM6207	Mechatronic Systems Design	3	2	0	1	0	0	6
68	SM6185	Mechatronics Course Project	2	0	0	0	2	0	7

69	SM6182	Robotics Practice	2	0	2	0	0	0	6
70	SM6187	Mechatronics Practice	2	0	2	0	0	0	7
71	SM6202	Automation Practice	2	0	2	0	0	0	6
9.2.4.2		**Elective**	**4**						
		TcCN	**4**						
72	SM6177	CNC Technology	2	2	0	0	0	0	6
73	SM6126	Machine Learning	2	0	2	0	0	0	6
74	SM6127	Applied Python Programming	2	0	2	0	0	0	6
75	SM6124	Mobile Robotics	2	2	0	0	0	0	6
76	SM6125	Computer Vision	2	2	0	0	0	0	7
77	SM6197	CAD/CAM	2	0	2	0	0	0	7
78	SM6131	Embedded Systems and IoT Programming	2	0	2	0	0	0	7
79	SM6132	Collaborative Robots	2	2	0	0	0	0	7
80	SM6196	CNC Practice	2	0	2	0	0	0	7
9.2.5		**Supplementary Courses**	**2**	**2**	**0**	**0**	**0**	**0**	
9.2.5.1		**Compulsory**	**2**	**2**	**0**	**0**	**0**	**0**	
81	SE6209	Innovation and Entrepreneurial Thinking	2	2	0	0	0	0	7
9.2.6		**Graduation Internship**	7	0	0	0	0	7	
9.2.6.1		**Compulsory**	7	0	0	0	0	7	
82	SM6134	Industry Internship (Mechatronics)	7	0	0	0	0	7	8
9.2.7		**Graduation Project/Thesis**	**8**	**0**	**0**	**0**	**8**	**0**	
9.2.7.1		**Compulsory**	**8**	**0**	**0**	**0**	**8**	**0**	
83	SM6135	Graduation Project (Mechatronics)	8	0	0	0	8	0	8
9.3		**Courses Excluded from Cumulative GPA Calculation**	**21.5**						
9.3.1		**Physical Education**	**3**	**0**	**3**	**0**	**0**	**0**	
9.3.1.1		**Compulsory**	**0**	**0**	**0**	**0**	**0**	**0**	

9.3.1.2		**Elective**	**3**	0	3	0	0	0	
TC1		**TcGDTC**	**3**	0	3	0	0	0	
84	PE6001	Aerobic 1	1	0	1	0	0	0	2
85	PE6002	Aerobic 2	1	0	1	0	0	0	3
86	PE6003	Volleyball 1	1	0	1	0	0	0	2
87	PE6004	Volleyball 2	1	0	1	0	0	0	3
88	PE6005	Swimming 1	1	0	1	0	0	0	2
89	PE6006	Swimming 2	1	0	1	0	0	0	3
90	PE6008	Shuttlecock Kicking	1	0	1	0	0	0	2
91	PE6011	Karate 1	1	0	1	0	0	0	2
92	PE6012	Karate 2	1	0	1	0	0	0	3
93	PE6013	Dance 1	1	0	1	0	0	0	2
94	PE6014	Dance 2	1	0	1	0	0	0	3
95	PE6015	Pencak Silat 1	1	0	1	0	0	0	2
96	PE6016	Pencak Silat 2	1	0	1	0	0	0	3
97	PE6017	Table Tennis 1	1	0	1	0	0	0	2
98	PE6018	Table Tennis 2	1	0	1	0	0	0	3
99	PE6023	Handball 1	1	0	1	0	0	0	2
100	PE6024	Handball 2	1	0	1	0	0	0	3
101	PE6021	Basketball 1	1	0	1	0	0	0	2
102	PE6022	Basketball 2	1	0	1	0	0	0	3
103	PE6025	Badminton 1	1	0	1	0	0	0	2
104	PE6026	Badminton 2	1	0	1	0	0	0	3
105	PE6019	Tennis 1	1	0	1	0	0	0	2
106	PE6020	Tennis 2	1	0	1	0	0	0	3
107	PE6027	Football 1	1	0	1	0	0	0	2

108	PE6028	Football 2	1	0	1	0	0	0	3
109	PE6030	Shuttlecock Kicking 2	1	0	1	0	0	0	3
110	PE6031	Sepak Takraw 1	1	0	1	0	0	0	2
111	PE6032	Sepak Takraw 2	1	0	1	0	0	0	3
112	PE6035	Futsal 1	1	0	1	0	0	0	2
113	PE6036	Futsal 2	1	0	1	0	0	0	3
9.3.2		**National Defense and Security Education**	**8.5**	**6**	**2.5**	**0**	**0**	**0**	
9.3.2.1		**Compulsory**	**8.5**	**6**	**2.5**	**0**	**0**	**0**	
114	DC6004	National Defense and Security Policies of the Communist Party of Vietnam	3	3	0	0	0	0	1
115	DC6005	National Defense and Security Affairs	2	2	0	0	0	0	1
116	DC6006	General Military Training	1.5	1	0.5	0	0	0	1
117	DC6007	Infantry Combat Techniques and Tactics	2	0	2	0	0	0	1
9.3.3		**Foreign Languages**	**10**	**10**	**0**	**0**	**0**	**0**	
9.3.3.1		**Compulsory**	**0**	**0**	**0**	**0**	**0**	**0**	
9.3.3.2		**Elective**	**10**	**10**	**0**	**0**	**0**	**0**	
TC1		**TcNNNK1**	**10**	**10**	**0**	**0**	**0**	**0**	
118	SL6311	Basic English for Mechanical and Automotive Engineering 1	5	5	0	0	0	0	1
119	SL6312	Basic English for Mechanical and Automotive Engineering 2	5	5	0	0	0	0	2
TC2		**TcNNNK2**	**10**	**10**	**0**	**0**	**0**	**0**	
120	FL6560	Basic Chinese 1	5	5	0	0	0	0	1
121	FL6561	Basic Chinese 2	5	5	0	0	0	0	2
TC3		**TcNNNK3**	**10**	**10**	**0**	**0**	**0**	**0**	
122	FL6563	Basic Japanese 2	5	5	0	0	0	0	2
123	FL6562	Basic Japanese 1	5	5	0	0	0	0	1
TC4		**TcNNNK4**	**10**	**10**	**0**	**0**	**0**	**0**	
124	FL6565	Basic Korean 2	5	5	0	0	0	0	2

125	FL6564	Basic Korean 1	5	5	0	0	0	0	1
TC5		**TcNNNK5**	**10**	**10**	**0**	**0**	**0**	**0**	
126	FL6580	Basic German 1	5	5	0	0	0	0	1
127	FL6581	Basic German 2	5	5	0	0	0	0	2