Training Program Framework

No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practice / Lab	Sem. / Assign.	Project	Intern.	Term	Prereq. Code
9.1		**GENERAL EDUCATION**								
9.1.1		**Political Theory and Law**	**13**	**13**	**0**	**0**	**0**	**0**		
9.1.1.1		**Compulsory**								
1.	LP6021	Introduction to Law	2	2	0	0	0	0	3	
2.	LP6022	Ho Chi Minh Thought	2	2	0	0	0	0	3	
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	2	
6.	LP6027	History of the Communist Party of Vietnam	2	2	0	0	0	0	4	
1.1.2		**Natural Sciences**	**17**	**14**	**3**	**0**	**0**	**0**		
9.1.2.1		**Compulsory**	**12**	**10**	**2**	**0**	**0**	**0**		
7.	CT6001	General Chemistry	3	2	1	0	0	0	1	
8.	BS6037	Linear Algebra	3	3	0	0	0	0	2	
9.	BS6002	Calculus	3	3	0	0	0	0	1	
10.	BS6027	General Physics	3	2	1	0	0	0	1	
9.1.2.2		**Elective**								
TC1		**Natural Sciences Elective Group**	**5**	**4**	**1**	**0**	**0**	**0**		
11.	BS6003	Numerical Methods	3	3	0	0	0	0	2	
12.	BS6040	Engineering Mathematics	3	3	0	0	0	0	2	
13.	BS6044	Probability Theory	2	2	0	0	0	0	2	
14.	CT6411	General Biology	3	2	1	0	0	0	2	
15.	BS6032	Numerical Methods	2	2	0	0	0	0	2	
9.1.3		**Social Sciences and Humanities**	**6**	**6**	**0**	**0**	**0**	**0**		
1.1.3.1		**Compulsory**	**2**	**2**	**0**	**0**	**0**	**0**		
16.	BS6046	Intercultural Communication	2	2	0	0	0	0	1	
9.1.3.2		**Elective**								
TC1		**Social Sciences and Humanities Elective Group 1**	**2**	**2**	**0**	**0**	**0**	**0**		
17.	SE6218	Introduction to Economics	2	2	0	0	0	0	7	
18.	SM6186	Professional Work Practices	2	2	0	0	0	0	7	
19.	BS6047	Introduction to Scientific Research	2	2	0	0	0	0	7	
20.	BS6048	Labour Relations and Employment	2	2	0	0	0	0	7	
21.	BS6049	People and the Environment	2	2	0	0	0	0	7	
22.	SE6257	Project Management	2	2	0	0	0	0	7	
TC2		**Social Sciences and Humanities Elective Group 2**	**2**	**2**	**0**	**0**	**0**	**0**		

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practice / Lab	Sem. / Assign.	Project	Intern.	Term	Prereq. Code
23.	BS6050	Introduction to Music	2	2	0	0	0	0	7	
24.	BS6051	Introduction to Art Studies	2	2	0	0	0	0	7	
25.	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**								
9.1.4.2		**Elective**	**10**	**10**	**0**	**0**	**0**	**0**		
TC1		**English Language Program**	**10**	**10**	**0**	**0**	**0**	**0**		
26.	SL6579	English for Chemical Engineering Technology 1	5	5	0	0	0	0	3	
27.	SL6580	English for Chemical Engineering Technology 2	5	5	0	0	0	0	4	
TC2		**Chinese Language Program**	**10**	**10**	**0**	**0**	**0**	**0**		
28.	SL6347	Chinese 1	5	5	0	0	0	0	3	
29.	SL6348	Chinese 2	5	5	0	0	0	0	4	
TC3		**Japanese Language Program**	**10**	**10**	**0**	**0**	**0**	**0**		
30.	SL6349	Japanese 1	5	5	0	0	0	0	3	
31.	SL6350	Japanese 2	5	5	0	0	0	0	4	
TC4		**Korean Language Program**	**10**	**10**	**0**	**0**	**0**	**0**		
32.	SL6351	Korean 1	5	5	0	0	0	0	3	
33.	SL6352	Korean 2	5	5	0	0	0	0	4	
TC5		**German Language Program**	**10**	**10**	**0**	**0**	**0**	**0**		
34.	FL6582	German 1	5	5	0	0	0	0	3	
35.	FL6583	German 2	5	5	0	0	0	0	4	
9.1.5		**Digital Technology and Applications**	**3**	**2**	**1**	**0**	**0**	**0**		
36.	SC6201	Digital Competency Development	3	2	1	0	0	0	7	
9.2		**PROFESSIONAL EDUCATION**	**86**	**52**	**13**	**6**	**8**	**7**		
9.2.1		**Foundational Knowledge of the Field Group**	**9**	**7**	**1**	**1**	**0**			
9.2.1.1		**Compulsory**								
37.	CT6108	Introduction to Engineering	3	2	0	1	0	0	1	
38.	SEE6164	Electrical and Electronic Engineering	3	2	1	0	0	0	5	
39.	SM6050	Engineering Drawing	3	3	0	0	0	0	2	
9.2.2		**Foundational Knowledge of the Discipline Group**	**10**	**8**	**2**	**0**	**0**	**0**		
9.2.2.1		**Compulsory**	**10**	**8**	**2**	**0**	**0**	**0**		
40.	CT6255	Organic Chemistry	3	3	0	0	0	0	3	
41.	CT6386	Physical Chemistry Laboratory	1	0	1	0	0	0	2	
42.	CT6256	Analytical Chemistry	3	2	1	0	0	0	2	

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practice / Lab	Sem. / Assign.	Project	Intern.	Term	Prereq. Code
43.	CT6257	Physical Chemistry	3	3	0	0	0	0	2	
9.2.3		**Foundational Knowledge of the Major**	**20**	**14**	**3**	**0**	**1**	**2**		
9.2.3.1		**Compulsory**	**16**	**10**	**3**	**0**	**1**	**2**		
44.	CT6352	Catalysis Engineering	2	2	0	0	0	0	3	
45.	CT6374	Mechanical Unit Operations	2	2	0	0	0	0	3	
46.	CT6375	Mass Transfer Operations	2	2	0	0	0	0	4	
47.	CT6376	Heat Transfer Operations	2	2	0	0	0	0	3	
48.	CT6402	Unit Operations Laboratory	2	0	2	0	0	0	4	
49.	CT6425	Industrial Observation Placement	2	0	0	0	0	2	4	
50.	CT6258	Inorganic Chemistry	3	2	1	0	0	0	2	
51.	CT6277	Unit Operations Course Project	1	0	0	0	1	0	5	
9.2.3.2		**Elective**	**4**	**4**	**0**	**0**	**0**	**0**		
52.	CT6350	Chemical Reaction Engineering	2	2	0	0	0	0	4	
53.	CT6337	Green Chemistry	2	2	0	0	0	0	4	
54.	CT6339	Environmental Chemistry	2	2	0	0	0	0	4	
55.	CT6280	Occupational Safety	2	2	0	0	0	0	4	
56.	CT6282	Corrosion and Corrosion Protection of Metals	2	2	0	0	0	0	4	
57.	CT6358	Optimization Modelling in Chemical Engineering	2	2	0	0	0	0	4	
58.	CT6381	Computer Applications in Chemistry	2	1	1	0	0	0	4	
9.2.4		**Specialization**								
9.2.4.1		**Compulsory**	**30**							
9.2.4.2		**Elective**								
TC1		**Inorganic Chemical Technology Elective Group 1**	**20**							
59.	CT6288	Industrial Nitrogen Compounds Technology	2	2	0	0	0	0	6	
60.	CT6297	Electrochemical Technology	2	2	0	0	0	0	5	
61.	CT6299	Ceramics Technology	2	2	0	0	0	0	6	
62.	CT6309	Fertilizer Production Technology	2	2	0	0	0	0	5	
63.	CT6311	Industrial Alkali Production Technology	2	2	0	0	0	0	5	
64.	CT6317	Inorganic Materials Technology	2	2	0	0	0	0	4	
65.	CT6328	Inorganic Chemical Technology Course Project	2	0	0	2	2	0	7	
66.	CT6392	Electrochemistry and Electroplating Laboratory	2	0	2	0	0	0	5	
67.	CT6395	Silicate and Ceramics Technology Laboratory	2	0	2	0	0	0	6	
68.	CT6404	Inorganic Materials and Fertilizers Laboratory	2	0	2	0	0	0	7	
TC2		**Inorganic Chemical Technology Elective Group 2**	**10**							

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practice / Lab	Sem. / Assign.	Project	Intern.	Term	Prereq. Code
69.	CT6286	Inorganic Acid Technology	2	2	0	0	0	0	6	
70.	CT6305	Electroplating Technology	2	2	0	0	0	0	6	
71.	CT6306	Nanotechnology	2	2	0	0	0	0	6	
72.	CT6318	Cement Technology	2	2	0	0	0	0	7	
73.	CT6321	Industrial Inorganic Pigments	2	2	0	0	0	0	6	
74.	CT6331	Phase Diagrams	2	2	0	0	0	0	7	
75.	CT6338	Physical Chemistry of Silicates	2	2	0	0	0	0	7	
76.	CT6351	Separation and Purification Techniques	2	2	0	0	0	0	7	
77.	CT6367	Applied Analysis in Inorganic Chemical Technology	2	2	0	0	0	0	7	
78.	CT6426	Glass Technology	2	2	0	0	0	0	7	
TC3		**Organic Chemical Technology Elective Group 1**	**20**							
79.	CT6302	Essential Oils, Fragrances and Cosmetics Technology	2	2	0	0	0	0	6	
80.	CT6315	Coatings Technology	2	2	0	0	0	0	5	
81.	CT6316	Organic Synthesis Technology	2	2	0	0	0	0	4	
82.	CT6327	Organic Chemical Technology Course Project	2	0	0	2	2	0	7	
83.	CT6336	Polymer Chemistry and Technology	2	2	0	0	0	0	5	
84.	CT6398	Essential Oils, Fragrances and Cosmetics Laboratory	2	0	2	0	0	0	6	
85.	CT6403	Organic Synthesis Laboratory	2	0	2	0	0	0	4	
86.	CT6427	Polymer and Coatings Laboratory	2	0	2	0	0	0	5	
87.	CT6431	Pulp and Paper Technology	2	2	0	0	0	0	5	
88.	CT6432	Rubber Technology	2	2	0	0	0	0	5	
TC4		**Organic Chemical Technology Elective Group 2**	**10**							
89.	CT6287	Surfactant Technology	2	2	0	0	0	0	6	
90.	CT6296	Extraction and Purification of Organic Compounds	2	2	0	0	0	0	6	
91.	CT6300	Plastics Processing Technology	2	2	0	0	0	0	6	
92.	CT6306	Nanotechnology	2	2	0	0	0	0	6	
93.	CT6308	Dyeing and Leather Tanning Technology	2	2	0	0	0	0	7	
94.	CT6333	Agrochemicals and Pesticides	2	2	0	0	0	0	7	
95.	CT6362	Biodegradable Polymers	2	2	0	0	0	0	7	
96.	CT6373	Methods for Structural Elucidation of Organic Compounds	2	2	0	0	0	0	7	
97.	CT6405	Composite Materials	2	2	0	0	0	0	7	
98.	CT6406	Biomedical Polymer Materials	2	2	0	0	0	0	7	
TC5		**Analytical Chemistry Technology Elective Group 1**	**20**							
99.	CT6283	Separation Methods in Analytical Chemistry	2	2	0	0	0	0	5	

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practice / Lab	Sem. / Assign.	Project	Intern.	Term	Prereq. Code
100.	CT6349	Sampling and Sample Preparation Techniques	2	2	0	0	0	0	5	
101.	CT6364	Environmental Analysis	2	2	0	0	0	0	5	
102.	CT6370	Electroanalytical Methods	2	2	0	0	0	0	5	
103.	CT6371	Optical Analytical Methods	3	2	0	1	1	0	4	
104.	CT6372	Chromatographic Methods	3	2	0	1	1	0	5	
105.	CT6388	Electroanalysis and Chromatography Laboratory	1	0	1	0	0	0	5	
106.	CT6389	Optical Analysis Laboratory	1	0	1	0	0	0	4	
107.	CT6396	Analytical Chemistry Technology Practicum 1	2	0	2	0	0	0	6	
108.	CT6397	Analytical Chemistry Technology Practicum 2	2	0	2	0	0	0	7	
TC6		**Analytical Chemistry Technology Elective Group 2**	**10**							
109.	CT6324	Food Sensory Evaluation	2	1	1	0	0	0	6	
110.	CT6341	Pharmaceutical Quality Testing	2	2	0	0	0	0	6	
111.	CT6343	Petroleum Product Quality Testing and Evaluation	2	2	0	0	0	0	6	
112.	CT6353	Water Treatment Engineering	2	2	0	0	0	0	6	
113.	CT6354	Wastewater Treatment Engineering	2	2	0	0	0	0	6	
114.	CT6365	Food Analysis	2	2	0	0	0	0	7	
115.	CT6366	Analytical Methods in Industrial Production	2	2	0	0	0	0	7	
116.	CT6367	Applied Analysis in Inorganic Chemical Technology	2	2	0	0	0	0	7	
117.	CT6409	Experimental Data Analysis in Analytical Chemistry	2	2	0	0	0	0	7	
118.	CT6410	Analysis in Agricultural Production	2	2	0	0	0	0	7	
TC7		**Petrochemical Technology Elective Group 1**	**20**							
119.	CT6290	Petroleum Refining Technology	2	2	0	0	0	0	4	
120.	CT6293	Natural Gas Processing Technology	2	2	0	0	0	0	4	
121.	CT6307	Clean Fuel Technology	2	2	0	0	0	0	5	
122.	CT6326	Petrochemical Technology Course Project	2	0	0	2	2	0	7	
123.	CT6343	Petroleum Product Quality Testing and Evaluation	2	2	0	0	0	0	7	
124.	CT6358	Organic and Petrochemical Synthesis	2	2	0	0	0	0	5	
125.	CT6407	Catalysis in Petroleum Refining and Petrochemistry	2	2	0	0	0	0	7	
126.	CT6428	Quality Analysis of Gasoline, Kerosene and Diesel Laboratory	2	0	2	0	0	0	6	
127.	CT6429	Quality Analysis of Lubricants and Bitumen Laboratory	2	0	2	0	0	0	6	
128.	CT6430	Petrochemical Synthesis Laboratory	2	0	2	0	0	0	5	
TC8		**Petrochemical Technology Elective Group 2**	**10**							
129.	CT6281	Environmental Safety in the Petroleum Industry	2	2	0	0	0	0	6	
130.	CT6285	Petroleum Products	2	2	0	0	0	0	6	

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practice / Lab	Sem. / Assign.	Project	Intern.	Term	Prereq. Code
131.	CT6291	Lubricating Oil and Grease Processing Technology	2	2	0	0	0	0	6	
132.	CT6301	Petrochemical Technology	2	2	0	0	0	0	6	
133.	CT6334	Petroleum Chemistry	2	2	0	0	0	0	7	
134.	CT6342	Environmental Control in the Petroleum Industry	2	2	0	0	0	0	7	
135.	CT6347	Petroleum Pipeline and Storage Tank Engineering	2	2	0	0	0	0	7	
136.	CT6120	Petroleum Product Additives	2	2	0	0	0	0	7	
137.	CT6384	Storage and Transportation of Petroleum Products	2	2	0	0	0	0	7	
138.	CT6390	Petroleum Refinery Equipment	2	2	0	0	0	0	7	
9.2.5		**Supplementary Courses**	**2**	**2**	**0**	**0**	**0**	**0**		
139.	SE6209	Innovation and Entrepreneurial Thinking	2	2	0	0	0	0	6	
9.2.6		**Graduation Internship**								
9.2.6.1		**Compulsory**								
140.	CT6259	Industry Internship	7	0	0	0	0	7	8	
9.2.7		**Graduation Project / Thesis**								
9.2.7.1		**Compulsory**								
141.	CT6260	Graduation Project	8	0	0	0	8	0	8	
9.3		**COURSES EXCLUDED FROM CUMULATIVE GPA**								
9.3.1		**Physical Education**								
9.3.1.1		**Compulsory**								
9.3.1.2		**Elective**								
TC1		**Physical Education Elective Group**								
142.	PE6001	Aerobics 1	1	0	1	0	0	0	1	
143.	PE6002	Aerobics 2	1	0	1	0	0	0	2	
144.	PE6003	Volleyball 1	1	0	1	0	0	0	1	
145.	PE6004	Volleyball 2	1	0	1	0	0	0	2	
146.	PE6005	Swimming 1	1	0	1	0	0	0	1	
147.	PE6006	Swimming 2	1	0	1	0	0	0	2	
148.	PE6011	Karate 1	1	0	1	0	0	0	1	
149.	PE6012	Karate 2	1	0	1	0	0	0	2	
150.	PE6013	Dance Sport 1	1	0	1	0	0	0	1	
151.	PE6014	Dance Sport 2	1	0	1	0	0	0	2	
152.	PE6015	Pencak Silat 1	1	0	1	0	0	0	1	
153.	PE6016	Pencak Silat 2	1	0	1	0	0	0	2	
154.	PE6017	Table Tennis 1	1	0	1	0	0	0	1	

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155.	PE6018	Table Tennis 2	1	0	1	0	0	0	2	
156.	PE6023	Handball 1	1	0	1	0	0	0	1	
157.	PE6024	Handball 2	1	0	1	0	0	0	2	
158.	PE6021	Basketball 1	1	0	1	0	0	0	1	
159.	PE6022	Basketball 2	1	0	1	0	0	0	2	
160.	PE6025	Badminton 1	1	0	1	0	0	0	1	
161.	PE6026	Badminton 2	1	0	1	0	0	0	2	
162.	PE6019	Tennis 1	1	0	1	0	0	0	1	
163.	PE6020	Tennis 2	1	0	1	0	0	0	2	
164.	PE6027	Football 1	1	0	1	0	0	0	1	
165.	PE6028	Football 2	1	0	1	0	0	0	2	
166.	PE6029	Shuttlecock Kicking 1	1	0	1	0	0	0	1	
167.	PE6030	Shuttlecock Kicking 2	1	0	1	0	0	0	2	
168.	PE6031	Sepak Takraw 1	1	0	1	0	0	0	1	
169.	PE6032	Sepak Takraw 2	1	0	1	0	0	0	2	
170.	PE6035	Futsal 1	1	0	1	0	0	0	1	
171.	PE6036	Futsal 2	1	0	1	0	0	0	2	
9.3.2		**National Defence and Security Education**								
9.3.2.1		**Compulsory**								
172.	DC6004	National Defence and Security Policy of the Communist Party of Vietnam	3	3	0	0	0	0	1	
173.	DC6005	National Defence and Security Affairs	2	2	0	0	0	0	1	
174.	DC6006	General Military Studies	1.5	1	0.5	0	0	0	1	
175.	DC6007	Infantry Combat Techniques and Tactics	2	0	2	0	0	0	1	
9.3.3		**Foreign Languages**								
9.3.3.1		**Compulsory**								
9.3.3.2		**Elective**								
TC1		**Basic English Program**								
176.	FL6578	Basic English for Chemistry 1	5	5	0	0	0	0	1	
177.	FL6579	Basic English for Chemistry 2	5	5	0	0	0	0	2	
TC2		**Basic Chinese Program**								
178.	FL6560	Basic Chinese 1	5	5	0	0	0	0	1	
179.	FL6561	Basic Chinese 2	5	5	0	0	0	0	2	
TC3		**Basic Japanese Program**								

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180.	FL6563	Basic Japanese 2	5	5	0	0	0	0	2	
181.	FL6562	Basic Japanese 1	5	5	0	0	0	0	1	
TC4		**Basic Korean Program**								
182.	FL6565	Basic Korean 2	5	5	0	0	0	0	2	
183.	FL6564	Basic Korean 1	5	5	0	0	0	0	1	
TC5		**Basic German Program**								
184.	FL6580	Basic German 1	5	5	0	0	0	0	1	
185.	FL6581	Basic German 2	5	5	0	0	0	0	2	