

4 Correlation Matrix Between Expected Learning Outcomes and Course Learning Outcomes

Courses			Expected learning outcomes (2)										
			Knowledge (2.1)							Skill (2.2)		Attitude (2.3)	
			General Knowledge (2.1.1)			Fundamental Knowledge (2.1.2)			Specialized Knowledge (2.1.3)		Hard Skill (2.2.1)		Soft Skill (2.2.2)
			ELO1	ELO2	ELO3	ELO4	ELO5	ELO6	ELO7	ELO8	ELO9	ELO10	ELO11
General Knowledge													
1	QP010E	National Defense Education 1 (*)	X										
2	QP011E	National Defense Education 2 (*)	X										
3	QP012	National Defense Education 3 (*)	X										
4	QP013	National Defense Education 4 (*)	X										
5	TC100	Physical Education 1+2+3 (*)	X										
6	XH023	Basic English 1 (*)		X							X		
7	XH024	Basic English 2 (*)		X							X		
8	XH025	Basic English 3 (*)		X							X		
9	XH031	Advanced English 1 (*)		X							X		
10	XH032	Advanced English 2 (*)		X							X		
11	XH033	Advanced English 3 (*)		X							X		
12	FL001	Basic French 1 (*)		X							X		
13	FL002	Basic French 2 (*)		X							X		
14	FL003	Basic French 3 (*)		X							X		
15	FL007	Advanced French 1 (*)		X							X		
16	FL008	Advanced French 2 (*)		X							X		

Courses			Expected learning outcomes (2)									
			Knowledge (2.1)							Skill (2.2)		Attitude (2.3)
			General Knowledge (2.1.1)			Fundamental Knowledge (2.1.2)			Specialized Knowledge (2.1.3)		Hard Skill (2.2.1)	
			ELO1	ELO2	ELO3	ELO4	ELO5	ELO6	ELO7	ELO8	ELO9	ELO10
17	FL009	Advanced French 3 (*)		X							X	
18	ML014	Marxist-Leninism Philosophy	X									
19	ML016	Marxist-Leninism Political Economic	X									
20	ML018	Scientific Socialism	X									
21	ML019	History of the Communist Party of Viet Nam	X									
22	ML021	Hồ Chí Minh’s Thought	X									
23	KL001E	General Law	X	X							X	
24	ML007	Basic Logic		X							X	
25	XH028	Overview of Sociology		X							X	
26	XH011E	Basic Vietnamese Culture		X							X	
27	XH012	Vietnamese in Use		X							X	
28	XH014	General Management Documents and Archives		X							X	
29	KN001	Soft Skills		X							X	X
30	KN002	Creation, Innovation, Start-up		X							X	X
31	TN001	Calculus A1		X	X					X		
32	TN002	Calculus A2		X	X					X		
33	TN010	Probability and Statistics		X	X					X		
34	TN012	Linear Algebra and Analytic Geometry		X	X					X		
35	CT100	Study Skills		X							X	X

Courses			Expected learning outcomes (2)										
			Knowledge (2.1)							Skill (2.2)		Attitude (2.3)	
			General Knowledge (2.1.1)			Fundamental Knowledge (2.1.2)			Specialized Knowledge (2.1.3)		Hard Skill (2.2.1)		Soft Skill (2.2.2)
			ELO1	ELO2	ELO3	ELO4	ELO5	ELO6	ELO7	ELO8	ELO9		ELO10
36	CT200	Fundamentals of Information Technology		X	X						X	X	
Fundamental Knowledge													
37	CT172	Discrete Mathematics				X					X		
38	CT101	Basic Programming A					X						
39	CT103	Data Structures					X						
40	CT174	Design and Analysis of Algorithms					X						
41	CT175	Graph Theory				X	X				X		
42	CT176	Object-Oriented Programming					X						
43	CT173	Computer Architecture				X							
44	CT178	Principles of Operating Systems				X							
45	CT112	Computer Network				X							
46	CT179	System Administration				X							
47	CT180	Databases						X					
48	CT182	Unified Modeling Language						X					
49	CT296	System Analysis and Design						X					
50	CT190	Introduction to Artificial Intelligence				X						X	
51	CT188	Introduction to Web Programming					X						
Specialized Knowledge													
52	CT201	Project – Fundamental Topics								X	X	X	X

Courses			Expected learning outcomes (2)										
			Knowledge (2.1)								Skill (2.2)		Attitude (2.3)
			General Knowledge (2.1.1)			Fundamental Knowledge (2.1.2)			Specialized Knowledge (2.1.3)		Hard Skill (2.2.1)	Soft Skill (2.2.2)	
			ELO1	ELO2	ELO3	ELO4	ELO5	ELO6	ELO7	ELO8	ELO9	ELO10	ELO11
53	CT199	Linear programming							X		X		
54	CT479	Numerical Analysis							X		X		
55	CT292	Information theory							X		X		
56	CT121	Theory of Computation							X	X	X		
57	CT332	Artificial Intelligence							X	X	X	X	X
58	CT202	Principle of Machine Learning							X	X	X	X	X
59	CT467	Data Management							X	X	X		
60	CT204	Information security							X	X	X		
61	CT234	Embedded Software Development							X	X	X		
62	CT207	Open-Source Software Development							X	X	X		
63	CT449	Web application development							X	X	X		
64	CT208	Project - Specialized topics								X	X	X	X
65	CT316	Image Processing							X	X	X		
66	CT203	Computer graphics							X	X	X		
67	CT209	Advanced computer graphics							X	X	X	X	X
68	CT220	Computer animation							X	X	X		
69	CT210	Computer vision							X	X	X	X	X
70	CT312	Data mining							X	X	X	X	X
71	CT294	Applied machine learning							X	X	X	X	X
72	CT282	Deep Learning							X	X	X	X	X
73	CT217	Visual Analysis							X	X	X	X	X

Courses			Expected learning outcomes (2)										
			Knowledge (2.1)								Skill (2.2)		Attitude (2.3)
			General Knowledge (2.1.1)			Fundamental Knowledge (2.1.2)			Specialized Knowledge (2.1.3)		Hard Skill (2.2.1)	Soft Skill (2.2.2)	
			ELO1	ELO2	ELO3	ELO4	ELO5	ELO6	ELO7	ELO8	ELO9	ELO10	ELO11
74	CT219	Natural Language Processing							X	X	X	X	X
75	CT516	Internship in Computer Sciences								X	X	X	X
76	CT552	Gradational Thesis - Computer Science								X	X	X	X
77	CT504	Graduation project - Computer Science								X	X	X	X
78	CT198	English for Information Technology								X	X	X	X
79	CT216	Knowledge-based systems							X	X	X		
80	CT221	Network Programming							X	X	X		
81	CT222	System Security							X	X	X		
82	CT274	Programming for Mobile Devices							X	X	X		
83	CT290	Game development							X	X	X	X	X
84	CT284	Question-Answering System							X	X	X	X	X
85	CT189	Introduction to simulation platform							X	X	X		
86	CT295	Principles of IoT and Embedded Software							X	X	X	X	X
87	CT233	Cloud Computing							X	X	X		