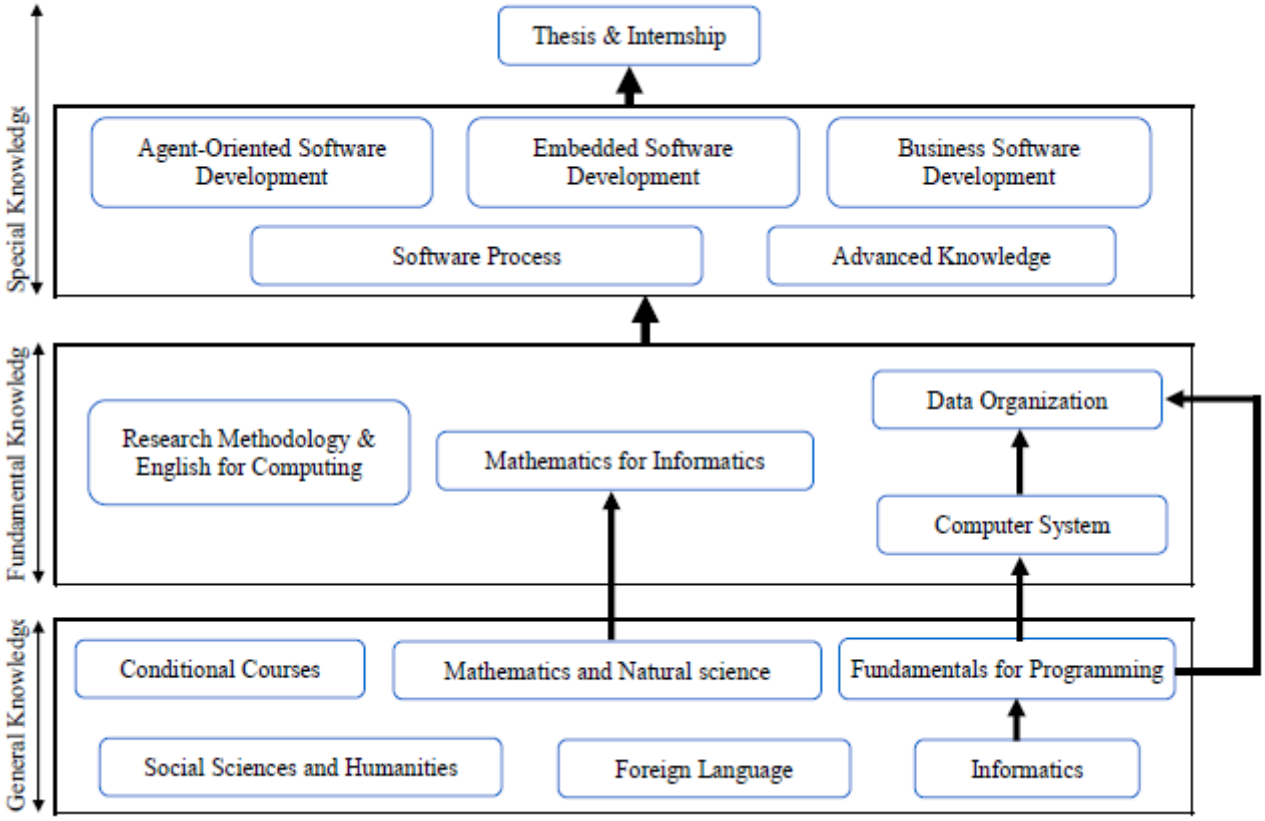
CURRICULUM

Program: Software Engineering **Code: 52480103**
College: Information and Communication Technology **Duration: 4.5 years**
Department: Software Engineering Department

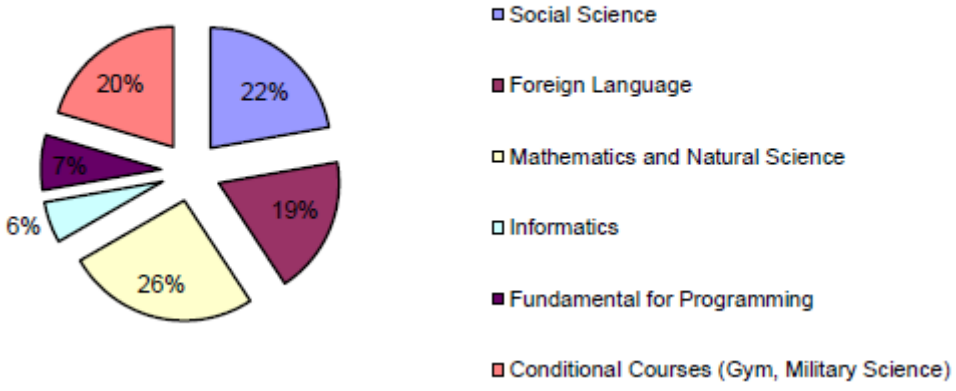
N.	Course Code	Course	Credits	Compulsory Course	Required credits	Hours in Class	Hours in Lab	Prerequisite course	Semester
General Knowledge									
1	QP001	Military Science 1 (*)	3	3		45			
2	QP002	Military Science 1 (*)	2	2		30			
3	QP003	Military Science 1 (*)	3	3		30	45		
4	TC100	Gym (*)	1+1+1		3		90		I,II, III
5	XH023	Fundamentals of English 1(*)	4		10credits (English / French)	60			I,II, III
6	XH024	Fundamentals of English 2(*)	3			45		XH023	I,II, III
7	XH025	Fundamentals of English 3(*)	3			45		XH024	I,II, III
8	XH004	Fundamentals of French 1(*)	3			45			I,II, III
9	XH005	Fundamentals of French 2(*)	3			45		XH004	I,II, III
10	XH006	Fundamentals of French 3(*)	4			60		XH005	I,II, III
11	TN033	Fundamentals of Informatics	1	1		15			
12	TN034	Fundamentals of Informatics (in Lab)	2	2			60		
13	ML009	Maxist – Leninist Philosophy 1	2	2		30			I,II, III
14	ML010	Maxist – Leninist Philosophy 2	3	3		45		ML009	I,II, III
15	ML006	Ho Chi Minh Ideology	2	2		30		ML010	I,II, III
16	ML011	Vietnam Communist Party Policies	3	3		45		ML006	I,II, III
17	KL001	Basic of Law	2	2	2	30			I, II, III
18	ML007	Basic of Logic	2			30			I, II, III
19	XH028	General Sociology – An Introduction	2			30			I, II, III
20	XH011	Vietnam's Cultural Foundation	2			30			I, II, III
21	XH012	Practical Vietnamese	2			30			I, II, III
22	XH014	Introduction to Records and Archives Management	2			30			I, II, III
23	TN001	Differential and Itegral Calculus A1	3	3		45			I, II, III
24	TN002	Differential and Itegral Calculus A2	4	4		60		TN001	I, II, III
25	TN010	Probability and Statistics	3	3		45			I, II, III
26	TN012	Linear Algebra and Geometry	4	4		60			I, II, III
27	CT101	Basic Programming A	4	4		30	60		I, II
Total : 56 credits (Required credits: 41; Elective credits: 15)									
Fundamental knowledge									
28	CT172	Discrete Mathematics 1	4	4		60			I, II
29	CT103	Data structures	4	4		45	30	CT101	I, II
30	CT173	Computer Architecture	3	3		45			I, II
31	CT178	Principles of Operating System	3	3		30	30	CT173	I, II
32	CT179	IT System Administration	3	3		30	30		I, II
33	CT112	Computer Network	3	3		30	30	CT178	I, II
34	CT171	Introduction to Software Engineering	3	3		30	30		I, II
35	CT176	Object Oriented Programming	3	3		30	30	CT101	I, II
36	CT175	Graph Theory	3	3		30	30	CT103	I, II
37	CT311	Scientific Research Methodologies	2	N1	5TC	20	20		I, II
38	CT187	Fundamentals of Information Technologies	3			30	30		I, II
39	CT183	English for Information Technologies 1	3	N2		45		XH025	I, II
40	CT184	English for Information Technologies 2	3			45		CT183	I, II
41	CT185	French for Information Technologies 1	3	N3		45		XH006	I, II
42	CT186	French for Information Technologies 2	3			45		CT185	I, II
43	CT174	Algorithm Analysis and Design	3	3		30	30	CT103	I, II
44	CT180	Database	3	3		30	30	CT103	I, II
45	CT182	Unified Modeling Language	3	3		30	30		I, II
46	CT181	Enterprise Information Systems	3	3		30	30		I, II
Total : 46 credits (Required credits: 41; Elective credits: 05)									

N.	Course Code	Course	Credits	Compulsory Course	Required credits	Hours in Class	Hours in Lab	Prerequisite course	Semester
Special Knowledge									
47	CT239	Project - Basic Topics	3	3			90	≥ 90TC, CT174	I, II, III
48	CT240	Software Constructions	3	3		45			I, II
49	CT241	Software Requirement Analysis	3	3		30	30	CT171, CT182	I, II
50	CT242	Software Architecture and Design	3	3		30	30	CT171	I, II
51	CT243	Software Quality Assurance and Testing	4	4		45	30	CT171	I, II
52	CT244	Software Maintenance	3	3		30	30	CT171	I, II
53	CT245	Human-Computer Interaction	2	2		20	20	CT171	I, II
54	CT246	.NET	3	3		30	30	CT176	I, II
55	CT276	Java	3	3		30	30	CT176	I, II
56	CT223	Software Project Management	3	3		30	30	CT171	I, II
57	CT330	Multi-Agent System	2	B1	8	20	20		I, II
58	CT446	Simulation Programming Language	3			30	30	CT330	I, II
59	CT247	Agent-Oriented Software Development	3			30	30	CT330	I, II
60	CT248	Digital Circuits	2	B2		30			I, II
61	CT234	Embedded Software Development	3			30	30	CT173	I, II
62	CT274	Mobile Programming	3			30	30	CT176	I, II
63	CT249	Business Software Development	2	B3		15	30	CT181, CT241, CT242	I, II
64	CT428	Web Programming	3			30	30	CT176, CT180	I, II
65	CT205	Database Management Systems	3			30	30	CT180	I, II
66	CT250	Software Development Project	3	3			90	CT241, CT242, CT243, CT223	I, II, III
67	CT454	Internship for Software Engineering	2	2			60	≥120TC, CT250	III
68	CT594	Thesis for Software Engineering	10		10		300	≥ 120TC	I, II
69	CT464	Graduation Project for Software Engineering	4				120	≥ 120TC	I, II
70	CT211	Network Security	3			30	30	CT112	I, II
71	CT222	Fundamentals of Information Systems Security	3			30	30		I, II
72	CT207	Open-source software development	3			30	30	CT176	I, II
73	CT251	Application Development for Windows	3			30	30	CT176, CT180	I, II
74	CT206	Linux Application Development	3			30	30	CT176, CT180	I, II
75	CT316	Image Processing	3			30	30		I, II
76	CT332	Artificial Intelligence	3			45			I, II
77	CT312	Data Mining	3			30	30	TN010	I, II
Total : 53 credits (Required credits: 35; Elective credits: 18)									
Total- 155 credits (Required credits: 117; Elective credits: 38)									

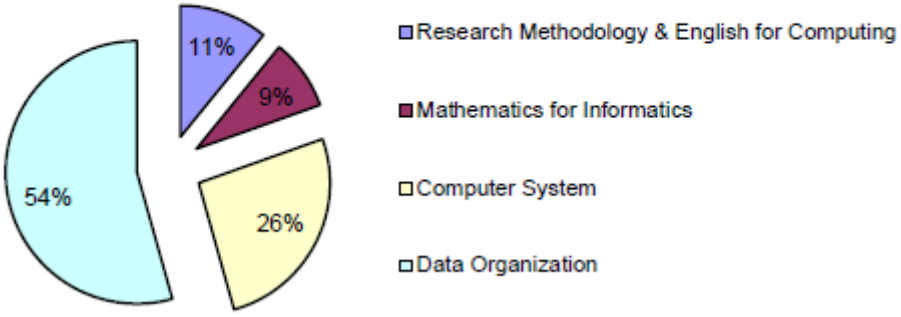
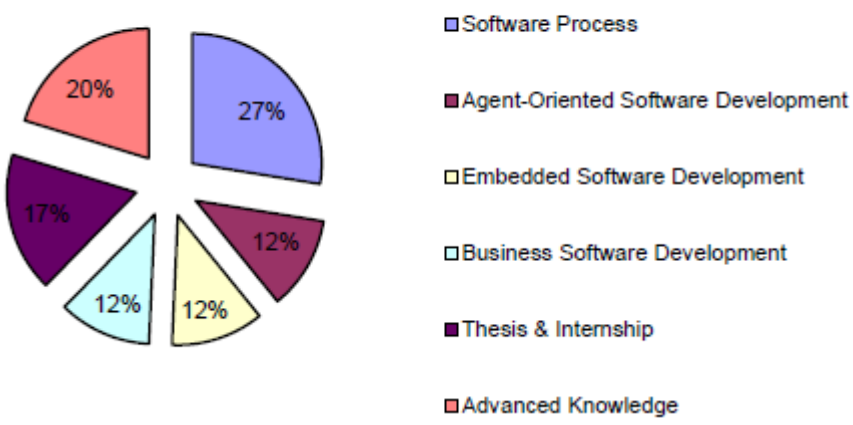
(*): Conditional courses which are not accumulated in the GPA.



General Knowledge



Fundamental Knowledge



Special Knowledge