The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Mechanical and Aerospace Engineering**		Pathway 1									
Program:		**BEng in Aerospace Engineering + Extended Major in Artificial Intelligence**		Background: □ □ Profile: Normative. Students to gradate in BEng (AE) with Research Option									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□ □	□ □	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□	3-5										
COMP□ COMP□ COMP□ COMP	1021□ 1022P□ 2011□ 2012H	Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3 3 4 5	3								3	
LANG	2030	Technical Communication I	3			3						3	
MATH□ □	□ □	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□	4-7										
MATH□ MATH□ MATH□ MATH□ MATH□ MATH	1012□ 1013□ 1014□ 1020□ 1023□ 1024	Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4 3 3 4 3 3	3	3							6	
MATH	2011	Introduction to Multivariable Calculus	3			3						3	
MATH□ MATH□ MATH□ MATH	□ 2111□ 2350□ 2351	Note: MATH 2111 OR MATH 2350 OR MATH 2351□ Matrix Algebra and Applications□ Applied Linear Algebra and Differential Equations□ Introduction to Differential Equations	3 3 3 3				3					3	
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3		3							3	
CHEM/LIFS/PHYS		Science 1000-level course (1 course from the specified course list)	3-4		3							3	
		Required credits for Engineering Fundamental Courses	22-28	6	9	6	3	0	0	0	0	24	
Major Required Courses and Electives													
MECH	1907	Introduction to Aerospace Engineering	3	3								3	
MECH	1990	Industrial Training	0			0*	[0^]					0	
MECH	2020	Statics and Dynamics	3			3						3	
MECH	2040	Solid Mechanics I	3				3					3	
MECH	2210	Fluid Mechanics	3				3					3	
MECH	2310	Thermodynamics	3			3						3	
MECH	2410	Engineering Materials I	3				3					3	
MECH	3400	Introduction to Composite Materials	3					3				3	
MECH	3610	Control Principles	3					3				3	
MECH	3620	Aircraft Design	3						3			3	
MECH	3640	Aerodynamics	3					3				3	
MECH	3650	Aircraft Structural Analysis	3					3				3	
MECH	3660	Gas Turbines and Jet Propulsion	3						3			3	
MECH	3670	Aircraft Performance and Stability	3					3				3	
MECH	3680	Avionics Systems	3						3			3	
MECH	3690	Aerospace Engineering Laboratory	3						3			3	
MECH	4980	Final Year Aerospace Design Project	6							3	3	6	
ELEC	2420	Basic Electronics	3			3						3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
LANG	4034	Technical Communication II for Mechanical and Aerospace Engineering	3						3			3	
MECH		MECH Electives in Aerospace (2 courses from the specified elective list)	6							3	3	6	
		Required credits for Major Required Courses and Electives	63	3	0	9	9	15	15	6	6	63	
Option Requirements													
Research Option													
MECH	4990	Aerospace Research Project	6							3	3	6	
		Required credits for Research Option	6	0	0	0	0	0	0	3	3	6	
AI Requirements													
Recommended Background Courses													
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0	
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0	
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				4					4	
		Required credits for AI Recommended Background Courses	9-11	0	0	0	4	0	0	0	0	4	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3	
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4	
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3	
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3	
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0	
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						3	3	3	9	
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	6	3	3	22	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	5		3			6	9	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
		Sub-total for University CORE	30	4	8	0	3	0	0	6	9	30	
				Term load (excl. free credits)									
				13	17	19	19	21	21	18	21		
				143 (w/o option) | 149 (w/ option)#									

<< Declaration of major

Notes:

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these terms subject to advice by the program office.

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requireme

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)										
Department:		**Department of Chemical and Biological Engineering**		Pathway 1										
Program:		**BEng in Bioengineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS, 1/2x CHEM)□ □ Profile: Normative. Students to graduate in BEng BIEN										
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**	
Major Requirements														
Engineering Fundamental Courses														
COMP□ □ COMP□ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 1029P□ 2011□ 2012H	Note: [COMP 1021] OR [(COMP 1022P OR COMP 2011□ OR COMP 2012H) AND COMP 1029P]□ Introduction to Computer Science□ Introduction to Computing with Java□ Python Programming Bridging Course□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-6 3 3 1 4 5		3							3		
CHEM	1020	General Chemistry I	3	3								0		
CHEM	1050	Laboratory for General Chemistry I	1	1								1		
LANG	2030	Technical Communication I	3				3					3		
LIFS□ □ LIFS	□ □ 1901	Note: Students with level 3 or above in HKDSE 1x Biology are□ exempted from taking LIFS 1901□ General Biology I	0-3 3	3								3		
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6		
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3	3								3		
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4		3							3		
		Required credits for Engineering Fundamental Courses	23-27	13	9	0	3	0	0	0	0	22		
Major Required Courses and Electives														
BIEN/CENG□ BIEN□ CENG	□ 1010□ 1000	Note: BIEN 1010 OR CENG 1000□ Introduction to Biomedical Engineering□ Introduction to Chemical and Biological Engineering	3 3 3	[3]	3							3	CENG 1000 offered in Fall only BIEN 1010 offered in Spring only	
BIEN	2310	Modeling for Chemical and Biological Engineering	3			3						3		
BIEN	2410	Cellular and Systems Physiology for Engineers	3				3					3		
BIEN	2610	Chemical Biology for Engineers	3			3						3		
BIEN	2990	Academic and Professional Development I	1			1						1		
BIEN/LIFS/MATH□ BIEN□ LIFS□ MATH	□ 3300□ 3150□ 2411	Note: BIEN 3300 OR LIFS 3150 OR MATH 2411□ Data Science for Molecular Engineering□ Biostatistics□ Applied Statistics	3-4 3 3 4			3						3		
BIEN□ BIEN□ BIEN	□ 3310**□ 3320	Note: BIEN 3310 OR BIEN 3320□ Data Science for Neural Engineering□ Data Science for Biology and Medicine	3 3 3			3	[3]					3		
BIEN	3410	Introduction to Bioinstrumentation and Bioimaging	3					3				3		
BIEN	3910	Bioengineering Laboratory	4					4				4		
BIEN□ BIEN□ BIEN□ BIEN	□ 4920□ 4930□ 4940	Note: BIEN 4920 OR BIEN 4930 OR BIEN 4940□ Bioengineering Capstone Design□ Bioengineering Thesis Research□ Bioengineering Industrial Project	6 6 6 6							3	3	6		
BIEN	4990	Academic and Professional Development II	1							1		1		
CENG	2210	Chemical and Biological Engineering Thermodynamics	3				3					3		
CENG	2220	Transport Phenomena I	3				3					3	CENG2220 offered in Spring only	
CENG	3230	Chemical and Biological Reaction Engineering	3					3				3		
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0		
LANG	4035	Technical Communication II for Chemical and Biological Engineering	3							3		3		
SSCI/ENG		Bioengineering Electives (5 courses from the specified elective list, of which at least 9 credits should be taken from a single specialty area (Area 1 or Area 2). Out of the 15 credits taken, at least 9 credits should be at 4000-level)	15						6	3	6	15		
		Required credits for Major Required Courses and Electives	60-61	0	3	13	9	10	6	10	9	60		
AI Requirements														
Recommended Background Courses														
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3		(3)							0		
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0		
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4			(4)						0		
		Required credits for AI Recommended Background Courses	9-11	0	0	0	0	0	0	0	0	0		
Major Required Courses and Electives														
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0		
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3		
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4		
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3		
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						(3)			0		
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0		
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						(3)	3	(3)	3		
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	0	3	0	13		
University CORE														
CORE	C3 - C12	U CORE - Others	24	1	2		3		9	3	6	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2	
CORE	C1 & C2	U CORE - English Language	6	3	3							6		
		Sub-total for University CORE	30	4	5	0	3	0	9	3	6	30		
				Term load (excl. free credits)										
				17	17	17	15	16	15	16	15			
				128#										

<< Declaration of major

Notes:

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these terms subject to advice by the program office.

( ) indicates the reuse of the same course to fulfill more than one requirement.

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

**Remarks on course(s):

- BIEN 3310: This is a new course to take effect in Fall, 2023-24.

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The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-2023)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)											
Department:		**Department of Chemical and Biological Engineering**		Pathway 1											
Program:		**BEng in Chemical and Environmental Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS, 1/2x CHEM)□ □ Profile: Normative. Students to graduate in BEng CEEV with Research Option											
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**		
Major Requirements															
Engineering Fundamental Courses															
COMP□ □ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 2011□ 2012H	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□ Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-5 3 3 4 5	3								3			
CHEM	1020	General Chemistry I	3		3							3			
LANG	2030	Technical Communication I	3			3						3			
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6			
MATH	2011	Introduction to Multivariable Calculus	3			3						3			
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3	3								3			
Required credits for Engineering Fundamental Courses			19-24	9	6	6	0	0	0	0	0	21			
Major Required Courses and Electives															
CENG□ CENG□ CENG	□ 1000□ 1500	Note: CENG 1000 OR CENG 1500□ Introduction to Chemical and Biological Engineering□ A First Course on Materials Science and Applications	3 3 3	[3]	3							3	CENG 1000 offered in Fall only CENG1500 offered in Spring		
CENG	1010	Academic and Professional Development I	0			0						0			
CENG	1700	Introduction to Environmental Engineering	3	3								3	CENG1700 offered in Fall only		
CENG	1980	Industrial Training	0				0^	0*		0*		0			
CENG	2110	Process and Product Design Principles	3			3						3			
CENG	2210	Chemical and Biological Engineering Thermodynamics	3				3					3			
CENG	2220	Transport Phenomena I	3				3					3			
CENG	2310	Modeling for Chemical and Biological Engineering	3			3						3			
CENG	3110	Process Dynamics and Control	3						3			3			
CENG	3150	Integrated Chemical Process and Product Design	5						5			5			
CENG	3210	Separation Processes	3					3				3			
CENG	3220	Transport Phenomena II	3					3				3			
CENG	3230	Chemical and Biological Reaction Engineering	3					3				3			
CENG	3950	Chemical and Environmental Engineering Laboratory	4						4			4			
CENG	4020	Academic and Professional Development II	0							0		0			
CENG	4710	Environmental Control	3							3		3			
CENG	4720	Environmental Impact Assessment and Management Systems	3								3	3			
CENG□ □ CENG□ CENG□ CENG	□ □ 4920□ 4930□ 4940	Note: CENG 4920 OR CENG 4930 OR CENG 4940 (Students□ taking the Research Option must take CENG 4930)□ Chemical Engineering Capstone Design□ Chemical Engineering Thesis Research□ Chemical Engineering Industrial Project	6 6 6 6							3	3	6			
BIEN/CHEM/LIFS□ BIEN□ CHEM□ LIFS	□ 2610□ 2311□ 1901	Note: BIEN 2610 OR CHEM 2311 OR LIFS 1901 □ Chemical Biology for Engineers□ Analytical Chemistry□ General Biology I	3 3 3 3				3					3			
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0			
CHEM	1050	Laboratory for General Chemistry I	1	1								1			
CHEM	2111	Fundamentals of Organic Chemistry	3				3					3			
CHEM	2155	Fundamental Organic Chemistry Laboratory	1				1					1			
LANG	4035	Technical Communication II for Chemical and Biological Engineering	3							3		3			
SENG/ENVR		CEEV Depth Elective (2 courses from the specified elective list, of which at least 1 course should be taken from the list of Restricted Electives)	6							3	3	6			
Required credits for Major Required Courses and Electives			68	4	3	6	13	9	12	12	9	68			
Option Requirements															
Research Option															
CENG/BIEN		Research Electives (2 courses from the specified elective list, out of which at least 3 credits must be attained from CENG 4980. Students may take CENG 4980 for more than one term)	6				3^		3^			6			
Required credits for Research Option			6	0	0	0	3	0	3	0	0	6			
AI Requirements															
Recommended Background Courses															
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0			
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0			
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4			4						0			
Required credits for AI Recommended Background Courses			9-11	0	0	4	0	0	0	0	0	0			
Major Required Courses and Electives															
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0			
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3			
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4			
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3			
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3			
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0			
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						3	3	3	9			
Required credits for AI Required Courses and Electives			22-23	0	0	4	0	6	6	3	3	22			
University CORE (Revamped)															
CORE	C3 - C12	U CORE - Others	24	1	5	0	3	6	0	3	6	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1 ; Spring: 2		
CORE	C1 & C2	U CORE - English Language	6	3	3							6			
Sub-total for University CORE			30	4	8	0	3	6	0	3	6	30			
				Term load (excl. free credits)											
				17	17	20	19	21	21	18	18				
				145 (w/o option) | 151 (w/ option)#											

<< Declaration of major

Notes:

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these terms subject to advice by the program office.

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

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The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-2023)

<< Declaration of major

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Department:		**Department of Chemical and Biological Engineering**		Pathway 1									
Program:		**BEng in Chemical Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS, 1/2x CHEM)□ □ Profile: Normative. Students to graduate in BEng CENG with Research Option									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□ □ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 2011□ 2012H	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□ Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-5 3 3 4 5	3								3	
CHEM	1020	General Chemistry I	3		3							3	
LANG	2030	Technical Communication I	3			3						3	
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6	
MATH	2011	Introduction to Multivariable Calculus	3			3						3	
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3	3								3	
Required credits for Engineering Fundamental Courses			19-24	9	6	6	0	0	0	0	0	21	
Major Required Courses and Electives													
CENG□ CENG□ CENG	□ 1000□ 1500	Note: CENG 1000 OR CENG 1500□ Introduction to Chemical and Biological Engineering□ A First Course on Materials Science and Applications	3 3 3	[3]	3							3	CENG1000 offered in Fall only CENG1500 offered in Spring only
CENG	1010	Academic and Professional Development I	0			0						0	
CENG/BIEN□ CENG□ CENG□ BIEN	□ 1600□ 1700□ 1010	Note: CENG 1600 OR CENG 1700 OR BIEN 1010□ Biotechnology and Its Business Opportunities□ Introduction to Environmental Engineering□ Introduction to Biomedical Engineering	3 3 3 3	3	[3]							3	CENG1600 & CENG1700 offered in Fall only; BIEN1010 offered in Spring only
CENG	1980	Industrial Training	0				0^	0*		0*		0	
CENG	2110	Process and Product Design Principles	3			3						3	
CENG	2210	Chemical and Biological Engineering Thermodynamics	3				3					3	
CENG	2220	Transport Phenomena I	3				3					3	
CENG	2310	Modeling for Chemical and Biological Engineering	3			3						3	
CENG	3110	Process Dynamics and Control	3						3			3	
CENG	3150	Integrated Chemical Process and Product Design	5						5			5	
CENG	3210	Separation Processes	3					3				3	
CENG	3220	Transport Phenomena II	3					3				3	
CENG	3230	Chemical and Biological Reaction Engineering	3					3				3	
CENG	3950	Chemical and Environmental Engineering Laboratory	4						4			4	
CENG	4020	Academic and Professional Development II	0							0		0	
CENG□ □ CENG□ CENG□ CENG	□ □ 4920□ 4930□ 4940	Note: CENG 4920 OR CENG 4930 OR CENG 4940 (Students□ taking the Research Option must take CENG 4930)□ Chemical Engineering Capstone Design□ Chemical Engineering Thesis Research□ Chemical Engineering Industrial Project	6 6 6 6							3	3	6	
BIEN/LIFS□ BIEN□ BIEN□ LIFS	□ 2410□ 2610□ 1901	Note: BIEN 2410 OR BIEN 2610 OR LIFS 1901□ Cellular and Systems Physiology for Engineers□ Chemical Biology for Engineers□ General Biology I	3 3 3 3				3					3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
CHEM	1050	Laboratory for General Chemistry I	1	1								1	
CHEM	2111	Fundamentals of Organic Chemistry	3				3					3	
CHEM	2155	Fundamental Organic Chemistry Laboratory	1				1					1	
LANG	4035	Technical Communication II for Chemical and Biological Engineering	3							3		3	
CENG/CHEM		CENG Electives (Courses from the specified list)	12							6	6	12	
Required credits for Major Required Courses and Electives			68	4	3	6	13	9	12	12	9	68	
Option Requirements													
Research Option													
CENG/BIEN		Research Electives (2 courses from the specified elective list, out of which at least 3 credits must be attained from CENG 4980. Students may take CENG 4980 for more than one term)	6				3^		3^			6	
Required credits for Research Option			6	0	0	0	3	0	3	0	0	6	
AI Requirements													
Recommended Background Courses													
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0	
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0	
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4			4						0	
Required credits for AI Recommended Background Courses			9-11	0	0	4	0	0	0	0	0	0	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3	
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4	
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3	
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3	
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0	
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						3	3	3	9	
Required credits for AI Required Courses and Electives			22-23	0	0	4	0	6	6	3	3	22	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	5		3	6		3	6	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1 ; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
Sub-total for University CORE			30	4	8	0	3	6	0	3	6	30	
				Term load (excl. free credits)									
				17	17	20	19	21	21	18	18		
				145 (w/o option) | 151 (w/ option)#									

<< Declaration of major

Notes:

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these terms subject to advice by the program office.

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Civil and Environmental Engineering**		Pathway 1									
Program:		**BEng in Civil and Environmental Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS, 1/2x CHEM)□ □ Profile: Normative. Students to graduate in BEng CIEV with Research Option									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□	□	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□	3-5										
□	□	COMP 2012H□											
COMP□	1021□	Introduction to Computer Science□	3	3								3	
COMP□	1022P□	Introduction to Computing with Java□	3										
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5										
CHEM	1020	General Chemistry I	3	3								3	
LANG	2030	Technical Communication I	3				3					3	
MATH□	□	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□	4-7										
□	□	(MATH 1014 OR MATH 1024)] OR [MATH 1020]□											
MATH□	1012□	Calculus IA□	4										
MATH□	1013□	Calculus IB□	3	3	3							6	
MATH□	1014□	Calculus II□	3										
MATH□	1020□	Accelerated Calculus□	4										
MATH□	1023□	Honors Calculus I□	3										
MATH	1024	Honors Calculus II	3										
MATH	2011	Introduction to Multivariable Calculus	3			3						3	
MATH	2350	Applied Linear Algebra and Differential Equations	3			3						3	
PHYS□	□	Note: PHYS 1112 OR PHYS 1312□	3										
PHYS□	1112□	General Physics I with Calculus□	3	3								3	
PHYS	1312	Honors General Physics I	3										
		Required credits for Engineering Fundamental Courses	22-27	12	3	6	3	0	0	0	0	24	
Major Required Courses and Electives													
CIVL	1010	Academic and Professional Development I	0			0	0					0	
CIVL	1100	Discovering Civil and Environmental Engineering	3		3							3	
CIVL	2010	Academic and Professional Development II	0					0	0			0	
CIVL	2020	Industrial and BIM Training	0				0*					0	Student should attend the training modules in Year 2 Winter and Spring terms.
CIVL	2110	Statics	3			3						3	
CIVL	2120	Mechanics of Materials	3				3					3	
CIVL	2160	Modeling Systems with Uncertainties	3			3						3	
CIVL	2170	Infrastructure Systems Engineering and Management	3				3					3	
CIVL	2410	Environmental Assessment and Management	3				3					3	
CIVL	2510	Fluid Mechanics	3				3					3	
CIVL	2810	Construction Materials	3					3				3	
CIVL	3010	Academic and Professional Development III	0							0	0	0	
CIVL	3020	Internship Training	0						0^			0	
CIVL□	□	Note: CIVL 3210 OR CIVL 3610□	3										
CIVL□	3210□	Introduction to Construction Management□	3						3			3	
CIVL	3610	Traffic and Transportation Engineering	3										
CIVL	3310	Structural Analysis	3					3				3	
CIVL	3320	Reinforced Concrete Design	3						3			3	
CIVL	3420	Water and Wastewater Engineering	3						3			3	
CIVL	3510	Hydrosystems Engineering	3					3				3	
CIVL	3730	Fundamentals of Geotechnics	3					3				3	
CIVL	3740	Geotechnical Analysis and Design	3						3			3	
CIVL□	□	Note: CIVL 4910 OR CIVL 4920 (Students taking the Research□	6										
□	□	Option must take CIVL 4920)□								2	4	6	
CIVL□	4910□	Civil and Environmental Engineering Final Year Project□	6										
CIVL	4920	Civil and Environmental Engineering Final Year Thesis	6										
CIVL	4950	Civil Engineering Capstone Design Project	3							3		3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
LANG	4033	Technical Communication II for Civil and Environmental Engineering	3							3		3	
CIVL/SENG		CIVL (Environmental) Electives [3 courses from the specified elective list. At least 2 courses (6 credits) should be selected from the "Restricted Electives", of which 1 course must be taken from CIVL 4450, CIVL 5450 or CIVL 5460.]	9							3	6	9	
		Required credits for Major Required Courses and Electives	66	0	3	6	12	12	12	11	10	66	
Option Requirements													
Research Option													
CIVL/UROP□	□	Note: CIVL 4900 OR UROP 1100□	1-4										
CIVL□	4900□	Directed Studies□	1-4							1		1	
UROP	1100	Undergraduate Research Opportunities Series 1	1										
		Advanced Electives (Courses at 4000- or PG level. Students should seek approval of their advisor for the choices of courses.)	3								3	3	
		Required credits for Research Option	4-7	0	0	0	0	0	0	1	3	4	
AI Requirements													
Recommended Background Courses													
COMP/ISOM		Note: COMP 1021 OR COMP 1022P OR ISOM 3230	3										
COMP	1021	Introduction to Computer Science	3	(3)								0	
COMP	1022P	Introduction to Computing with Java	3										
ISOM	3230	Business Applications Programming	3										
MATH		Note: MATH 1014 OR MATH 1020 OR MATH 1024	3-4										
MATH	1014	Calculus II	3		(3)							0	
MATH	1020	Accelerated Calculus	4										
MATH	1024	Honors Calculus II	3										
ISOM/MATH		Note: ISOM 2500 OR MATH 2411	3-4										
ISOM	2500	Business Statistics	3				4					4	
MATH	2411	Applied Statistics	4										
		Required credits for AI Recommended Background Courses	9-11	0	0	0	4	0	0	0	0	4	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3	
COMP		Note: COMP 2011 OR COMP 2012 OR COMP 2012H	4-5										
COMP	2011	Programming with C++	4			4						4	
COMP	2012	Object-Oriented Programming and Data Structures	4										
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5										
COMP		Note: COMP2211 OR COMP3211											
COMP	2211	Exploring Artificial Intelligence	3					3				3	
COMP	3211	Fundamentals of Artificial Intelligence											
COMP/EMIA/MATH		Note: COMP 4211 OR EMIA 4110 OR MATH 4432	3										
COMP	4211	Machine Learning	3						3			3	
EMIA	4110	Practical Machine Learning	3										
MATH	4432	Statistical Machine Learning	3										
EMIA		Note: EMIA 4990 OR EMIA 4991	0-3										
EMIA	4990	Interdisciplinary Capstone Project	0								0	0	
EMIA	4991	Interdisciplinary Capstone Project	3										
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						3	3	3	9	
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	6	3	3	22	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	8	3	0	3	3	3	3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
		Sub-total for University CORE	30	4	11	3	0	3	3	3	3	30	
				Term load (excl. free credits)									
				16	17	19	19	21	21	18	19		
				146 (w/o option) | 150 (w/ option)#									

<< Declaration of major

Notes:

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)											
Department:		**Department of Civil and Environmental Engineering**		Pathway 1											
Program:		**BEng in Civil Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS, 1/2x CHEM)□ □ Profile: Normative. Students to graduate in BEng CIVL with Research Option											
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**		
Major Requirements															
Engineering Fundamental Courses															
COMP□ □ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 2011□ 2012H	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□ Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-5 3 3 4 5	3								3			
CHEM	1020	General Chemistry I	3	3								3			
LANG	2030	Technical Communication I	3				3					3			
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6			
MATH	2011	Introduction to Multivariable Calculus	3			3						3			
MATH	2350	Applied Linear Algebra and Differential Equations	3			3						3			
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3	3								3			
		Required credits for Engineering Fundamental Courses	22-27	12	3	6	3	0	0	0	0	24			
Major Required Courses and Electives															
CIVL	1010	Academic and Professional Development I	0			0	0					0			
CIVL	1100	Discovering Civil and Environmental Engineering	3		3							3			
CIVL	2010	Academic and Professional Development II	0					0	0			0			
CIVL	2020	Industrial and BIM Training	0				0*					0	Student should attend the training modules in Year 2 Winter and Spring terms.		
CIVL	2110	Statics	3			3						3			
CIVL	2120	Mechanics of Materials	3				3					3			
CIVL	2160	Modeling Systems with Uncertainties	3			3						3			
CIVL	2170	Infrastructure Systems Engineering and Management	3				3					3			
CIVL	2410	Environmental Assessment and Management	3				3					3			
CIVL	2510	Fluid Mechanics	3				3					3			
CIVL	2810	Construction Materials	3					3				3			
CIVL	3010	Academic and Professional Development III	0							0	0	0			
CIVL	3020	Internship Training	0						0^			0			
CIVL	3210	Introduction to Construction Management	3						3			3			
CIVL	3310	Structural Analysis	3					3				3			
CIVL	3320	Reinforced Concrete Design	3						3			3			
CIVL	3510	Hydrosystems Engineering	3					3				3			
CIVL	3610	Traffic and Transportation Engineering	3						3			3			
CIVL	3730	Fundamentals of Geotechnics	3					3				3			
CIVL	3740	Geotechnical Analysis and Design	3						3			3			
CIVL□ □ CIVL□ CIVL	□ □ 4910□ 4920	Note: CIVL 4910 OR CIVL 4920 (Students taking the Research□ Option must take CIVL 4920)□ Civil and Environmental Engineering Final Year Project□ Civil and Environmental Engineering Final Year Thesis	6 6 6							2	4	6			
CIVL	4950	Civil Engineering Capstone Design Project	3							3		3			
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0			
LANG	4033	Technical Communication II for Civil and Environmental Engineering	3							3		3			
CIVL/SENG		CIVL Electives (3 courses from the specified elective list)	9							3	6	9			
		Required credits for Major Required Courses and Electives	66	0	3	6	12	12	12	11	10	66			
Option Requirements															
Research Option															
CIVL/UROP□ CIVL□ UROP	□ 4900□ 1100	Note: CIVL 4900 OR UROP 1100□ Directed Studies□ Undergraduate Research Opportunities Series 1	1-4 1-4 1							1		1			
		Advanced Electives (Courses at 4000- or PG level. Students should seek approval of their advisor for the choices of courses.)	3								3	3			
		Required credits for Research Option	4-7	0	0	0	0	0	0	1	3	4			
AI Requirements															
Recommended Background Courses															
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0			
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0			
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				4					4			
		Required credits for AI Recommended Background Courses	9-11	0	0	0	4	0	0	0	0	4			
Major Required Courses and Electives															
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0			
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3			
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4			
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3			
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3			
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0			
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						3	3	3	9			
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	6	3	3	22			
University CORE (Revamped)															
CORE	C3 - C12	U CORE - Others	24	1	8	3	0	3	3	3	3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall:		
CORE	C1 & C2	U CORE - English Language	6	3	3							6			
		Sub-total for University CORE	30	4	11	3	0	3	3	3	3	30			
				Term load (excl. free credits)											
				16	17	19	19	21	21	18	19				
				146 (w/o option) | 150 (w/ option)#											

<< Declaration of major

Notes:

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Computer Science and Engineering**		Pathway 1									
Program:		**BEng in Computer Science + Extended Major in Artificial Intelligence**		Background: □ □ Profile:									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□	□	Note: COMP 1021 OR COMP 1022P□	3										
COMP□	1021□	Introduction to Computer Science□	3	3								3	
COMP	1022P	Introduction to Computing with Java	3										
CHEM/LIFS/PHYS□	□	Note: CHEM 1008 OR CHEM 1020 OR LIFS 1901 OR□	3-4										
□	□	PHYS 1101 OR PHYS 1112 OR PHYS 1312□											
CHEM□	1008□	Introductory Chemistry□	3										
CHEM□	1020□	General Chemistry I□	3										
LIFS□	1901□	General Biology I□	3		3							3	
PHYS□	1101□	Introductory Physics□	4										
PHYS□	1112□	General Physics I with Calculus□	3										
PHYS	1312	Honors General Physics I	3										
LANG	2030	Technical Communication I	3			3						3	
MATH□	□	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□	4-7										
□	□	(MATH 1014 OR MATH 1024)] OR [MATH 1020]□											
MATH□	1012□	Calculus IA□	4										
MATH□	1013□	Calculus IB□	3	3	3							6	
MATH□	1014□	Calculus II□	3										
MATH□	1020□	Accelerated Calculus□	4										
MATH□	1023□	Honors Calculus I□	3										
MATH	1024	Honors Calculus II	3										
MATH	2111	Matrix Algebra and Applications	3			3						3	
SENG		Engineering Introduction course (COMP students may also use COMP 1022P to fulfill this requirement.)	3-4									0	
		Required credits for Engineering Fundamental Courses	19-24	6	6	6	0	0	0	0	0	18	
Major Required Courses and Electives													
COMP□	□	Note: [COMP 1991 AND (COMP 4981 OR COMP 4981H)]□	6										
□	□	OR [COMP 4910]□											
COMP□	1991□	Industrial Experience□	0										
COMP□	4910□	Co-op Program□	6							3	3	6	
COMP□	4981□	Final Year Project□	6										
COMP	4981H	Final Year Thesis	6										
COMP□	□	Note: (COMP 2011 AND COMP 2012) OR COMP 2012H□	5-8										
COMP□	2011□	Programming with C++□	4			4	4					8	
COMP□	2012□	Object-Oriented Programming and Data Structures□	4										
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5										
COMP	2611	Computer Organization	4				4					4	
COMP□	□	Note: COMP 2711 OR COMP 2711H□	4										
COMP□	2711□	Discrete Mathematical Tools for Computer Science□	4			4						4	
COMP	2711H	Honors Discrete Mathematical Tools for Computer Science	4										
COMP□	□	Note: COMP 3111 OR COMP 3111H□	4										
COMP□	3111□	Software Engineering□	4					4				4	
COMP	3111H	Honors Software Engineering	4										
COMP	3511	Operating Systems	3					3				3	
COMP□	□	Note: COMP 3711 OR COMP 3711H□	3-4										
COMP□	3711□	Design and Analysis of Algorithms□	3					3				3	
COMP	3711H	Honors Design and Analysis of Algorithms	4										
COMP□	□	Note: Students are required to take COMP 4900 for every regular□	0										
□	□	term in which they are in residency at HKUST with major□				0	0	0	0	0	0	0	
□	□	in COMP□											
COMP	4900	Academic and Professional Development	0										
ELEC/IEDA/MATH□	□	Note: ELEC 2600 OR ELEC 2600H OR IEDA 2520 OR□	3-4										
□	□	IEDA 2540 OR MATH 2411 OR MATH 2421 OR□											
□	□	MATH 2431□											
ELEC□	2600□	Probability and Random Processes in Engineering□	4										
ELEC□	2600H□	Honors Probability and Random Processes in Engineering□	4				4					4	
IEDA□	2520□	Probability for Engineers□	3										
IEDA□	2540□	Statistics for Engineers□	3										
MATH□	2411□	Applied Statistics□	4										
MATH□	2421□	Probability□	4										
MATH	2431	Honors Probability	4										
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
LANG	4030	Technical Communication II for CSE, CPEG & DSCT	3							3		3	
COMP		COMP Electives (5 courses from the specified elective list, of which at least 3 courses should be taken from 1 area and at least 2 courses outside that area (including course(s) in the Courses Without Associated Area). Students may use at most one course under Deep Learning Applications (COMP 4471 and COMP 5223) to count towards this elective requirement.)	15						6	6	3	15	
COMP		COMP 2000-level or above Elective (Any course(s) of the subject and level as specified)	3								3	3	
		Required credits for Major Required Courses and Electives	53-58	0	0	8	12	10	6	12	9	57	
AI Requirements													
Recommended Background Courses													
COMP/ISOM		Note: COMP 1021 OR COMP 1022P OR ISOM 3230	3										
COMP	1021	Introduction to Computer Science	3	(3)								0	
COMP	1022P	Introduction to Computing with Java	3										
ISOM	3230	Business Applications Programming	3										
MATH		Note: MATH 1014 OR MATH 1020 OR MATH 1024	3-4										
MATH	1014	Calculus II	3										
MATH	1020	Accelerated Calculus	4		(3)							0	
MATH	1024	Honors Calculus II	3										
ISOM/MATH		Note: ISOM 2500 OR MATH 2411	3-4										
ISOM	2500	Business Statistics	3				(4)					0	
MATH	2411	Applied Statistics	4										
		Required credits for AI Recommended Background Courses	9-11	0	0	0	0	0	0	0	0	0	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3				3					3	
COMP		Note: COMP 2011 OR COMP 2012 OR COMP 2012H	4-5										
COMP	2011	Programming with C++	4			(4)						0	
COMP	2012	Object-Oriented Programming and Data Structures	4										
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5										
COMP		Note: COMP2211 OR COMP3211	3										
COMP	2211	Exploring Artificial Intelligence	3					3				3	
COMP	3211	Fundamentals of Artificial Intelligence	3										
COMP/EMIA/MATH		Note: COMP 4211 OR EMIA 4110 OR MATH 4432	3										
COMP	4211	Machine Learning	3						3			3	
EMIA	4110	Practical Machine Learning	3										
MATH	4432	Statistical Machine Learning	3										
EMIA		Note: EMIA 4990 OR EMIA 4991	0-3										
EMIA	4990	Interdisciplinary Capstone Project	0								0	0	
EMIA	4991	Interdisciplinary Capstone Project	3										
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						3	3	3	9	
		Required credits for AI Required Courses and Electives	22-23	0	0	0	3	3	6	3	3	18	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	5	3	3	3	3	3	3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
		Sub-total for University CORE	30	4	8	3	3	3	3	3	3	30	
				Term load (excl. free credits)									
				10	14	17	18	16	15	18	15		
				123#									

<< Declaration of major

Note:

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)										
Department:		**Computer Engineering Program Office**		Pathway 1										
Program:		**BEng in Computer Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS)□ □ Profile: Normative. Students to graduate in BEng CPEG with Research Option										
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**	
Major Requirements														
Engineering Fundamental Courses														
COMP□ COMP□ COMP	□ 1021□ 1022P	Note: COMP 1021 OR COMP 1022P□ Introduction to Computer Science□ Introduction to Computing with Java	3 3 3	3								3		
LANG	2030	Technical Communication I	3				3					3		
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6		
MATH	2011	Introduction to Multivariable Calculus	3					3				3		
MATH	2111	Matrix Algebra and Applications	3			3						3		
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3	3								3		
PHYS□ PHYS□ PHYS	□ 1114□ 1314	Note: PHYS 1114 OR PHYS 1314□ General Physics II□ Honors General Physics II	3 3 3		3							3		
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4		3							3		
		Required credits for Engineering Fundamental Courses	25-29	9	9	3	3	3	0	0	0	27		
Major Required Courses and Electives														
CPEG□ □ □ □ CPEG□ CPEG□ CPEG□ CPEG□ CPEG□ CPEG	□ □ □ □ 1971□ 4901□ 4902□ 4910□ 4911□ 4912	Note: [CPEG 1971 AND (CPEG 4901 OR CPEG 4902 OR□ CPEG 4911 OR CPEG 4912)] OR [CPEG 4910] (Students□ taking the Research Option must take either CPEG 4902 or□ CPEG 4912)□ Industrial Experience□ Computer Engineering Final Year Project in COMP□ Computer Engineering Final Year Thesis in COMP□ Co-op Program□ Computer Engineering Final Year Project in ELEC□ Computer Engineering Final Year Thesis in ELEC	6 0 6 6 6 6 6							3	3	6		
CPEG	2930	Academic and Professional Development I	0			0	0					0		
CPEG	3930	Academic and Professional Development II	0					0	0			0		
COMP□ COMP□ COMP□ COMP	□ 2011□ 2012□ 2012H	Note: (COMP 2011 AND COMP 2012) OR COMP 2012H□ Programming with C++□ Object-Oriented Programming and Data Structures□ Honors Object-Oriented Programming and Data Structures	5-8 4 4 5			4		4				8		
COMP/ELEC□ COMP□ ELEC	□ 2611□ 2350	Note: COMP 2611 OR ELEC 2350□ Computer Organization□ Introduction to Computer Organization and Design	4 4 4				4					4		
COMP/ELEC□ COMP□ COMP□ ELEC	□ 2711□ 2711H□ 2600	Note: COMP 2711 OR COMP 2711H OR ELEC 2600□ Discrete Mathematical Tools for Computer Science□ Honors Discrete Mathematical Tools for Computer Science□ Probability and Random Processes in Engineering	4 4 4 4					4				4		
COMP	3511	Operating Systems	3						3			3		
ELEC	1100	Introduction to Electro-Robot Design	4			4						4		
ELEC□ □ ELEC□ ELEC□ ELEC	□ □ 1200□ 2100□ 2400	Note: ELEC 1200 OR ELEC 2100 OR ELEC 2400 (2 out□ of 3 courses)□ A System View of Communications: from Signals to Packets□ Signals and Systems□ Electronic Circuits	8 4 4 4				8					8		
ELEC	3300	Introduction to Embedded Systems	4						4			4		
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0		
LANG□ LANG□ LANG	□ 4030□ 4031	Note: LANG 4030 OR LANG 4031□ Technical Communication II for CSE, CPEG & DSCT□ Technical Communication II for ECE & CPEG	3 3 3							3		3		
COMP/ELEC		CPEG Restricted Elective (1 course from the specified elective list. The course taken as Restricted Elective may not be counted towards the requirement under "Area Courses".)	3								3	3		
COMP/ELEC/ENGG		Area Courses (At least 2 courses should be taken from one single area and at least 2 courses outside that area. Courses taken as Major Required Courses may not be counted towards the elective requirement.)	15						3	6	6	15	The 15 credits are divided as 5 courses with each course carries 3 credits.	
		Required credits for Major Required Courses and Electives	59-62	0	0	8	12	8	10	12	12	62		
Option Requirements														
Research Option														
COMP/ELEC		CPEG Electives (1 PG-level course as approved by advisor)	3							3		3		
COMP/ELEC/UROP		Research Electives [Students should take either (ELEC 5900 AND UROP 1100) or a 3-credit COMP 5000-level course to fulfill this requirement.]	2-3			[1]	[1]	1	1	[3]		2		
		Required credits for Research Option	5-6	0	0	0	0	1	1	3	0	5		
AI Requirements														
Recommended Background Courses														
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0		
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0		
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				(4)					0		
		Required credits for AI Recommended Background Courses	9-11	0	0	0	0	0	0	0	0	0		
Major Required Courses and Electives														
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0		
EMIA	2020	Cross-disciplinary Design Thinking	3			3						3		
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			(4)						0		
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					(3)				0		
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						(3)			0		
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3						0			0		
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9					3		3	3	9		
		Required credits for AI Required Courses and Electives	22-23	0	0	3	0	3	0	3	3	12		
University CORE (Revamped)														
CORE	C3 - C12	U CORE - Others	24	1	5	3	3	3	6		3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2	
CORE	C1 & C2	U CORE - English Language	6	3	3							6		
		Sub-total for University CORE	30	4	8	3	3	3	6	0	3	30		
				Term load (excl. free credits)										
				13	17	17	18	18	17	18	18			
				131 (w/o research option) | 136 (w/ research option)#										

<< Declaration of major

Notes:

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these terms subject to advice by the program office.

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Industrial Engineering and Decision Analytics**		Pathway 1									
Program:		**BEng in Decision Analytics + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS)□ □ Profile: Normative									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□ □ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 2011□ 2012H	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□ Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-5 3 3 4 5	3								3	
CHEM/PHYS□ CHEM□ PHYS□ PHYS	□ 1020□ 1112□ 1312	Note: CHEM 1020 OR PHYS 1112 OR PHYS 1312□ General Chemistry I□ General Physics I with Calculus□ Honors General Physics I	3 3 3 3	3								3	
LANG	2030	Technical Communication I	3			3						3	
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6	
MATH	2011	Introduction to Multivariable Calculus	3				3					3	
MATH	2111	Matrix Algebra and Applications	3			3						3	
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4		3							3	
		Required credits for Engineering Fundamental Courses	22-28	9	6	6	3	0	0	0	0	24	
Major Required Courses and Electives													
IEDA	1010	Academic and Professional Development I	0			0	0					0	
IEDA	1020	Academic and Professional Development II	0					0	0			0	
IEDA	1901	Industrial Training and Experience	0			0*	0^					0	
IEDA	2520	Probability for Engineers	3			3						3	
IEDA	2540	Statistics for Engineers	3				3					3	
IEDA	3010	Prescriptive Analytics	3					3				3	
IEDA	3230	Engineering Economics and Accounting	3				3					3	
IEDA	3250	Stochastic Models	3					3				3	
IEDA	3300	Industrial Data Systems	3				3					3	
IEDA	3560	Predictive Analytics	3						3			3	
IEDA□ IEDA□ IEDA	□ 4901□ 4920	Note: IEDA 4901 OR IEDA 4920□ Final Year Thesis□ Decision Analytics Final Year Project	6 6 6							3	3	6	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
ECON□ ECON□ ECON	□ 2103□ 2113	Note: ECON 2103 OR ECON 2113□ Principles of Microeconomics□ Microeconomics	3 3 3					3				3	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3			3	
IEDA/ISOM		Area Electives (5 courses from the specified elective list, of which all 5 courses should be taken from the same area)	15					3	6	6		15	
		Required credits for Major Required Courses and Electives	48	0	0	3	9	12	12	9	3	48	
AI Requirements													
Recommended Background Courses													
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0	
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0	
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				(4)					0	
		Required credits for AI Recommended Background Courses	9-11	0	0	0	0	0	0	0	0	0	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3	
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4	
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3	
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3	
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0	
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9							3	6	9	
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	3	3	6	22	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	8	3	3	0	0	3	6	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
		Sub-total for University CORE	30	4	11	3	3	0	0	3	6	30	
				Term load (excl. free credits)									
				13	17	16	15	18	15	15	15		
				124#									

<< Declaration of major

Notes:

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

2022-23 DA+AI (4Y) (2022-23 intake)

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Electronic and Computer Engineering**		Pathway 1									
Program:		**BEng in Electronic Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS)□ □ Profile: Normative. Students to graduate in BEng ELEC with Research Option									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
ELEC/MATH□ □ □	□ □ □	Note: (ELEC 2600 OR ELEC 2600H) OR MATH 2011 OR□ MATH 2111 OR MATH 2350 OR MATH 2351 (3 courses□ out of 6)□	9-10										
ELEC□ ELEC□ MATH□ MATH□ MATH□ MATH	2600□ 2600H□ 2011□ 2111□ 2350□ 2351	Probability and Random Processes in Engineering□ Honors Probability and Random Processes in Engineering□ Introduction to Multivariable Calculus□ Matrix Algebra and Applications□ Applied Linear Algebra and Differential Equations□ Introduction to Differential Equations	4 4 3 3 3 3			3	3	3				9	
COMP□ COMP□ COMP	□ 1021□ 1022P	Note: COMP 1021 OR COMP 1022P□ Introduction to Computer Science□ Introduction to Computing with Java	3 3 3	3								3	
COMP□ COMP□ COMP	□ 2011□ 2012H	Note: COMP 2011 OR COMP 2012H□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	4-5 4 5				4					4	
LANG	2030	Technical Communication I	3			3						3	
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6	
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3	3								3	
PHYS□ PHYS□ PHYS	□ 1114□ 1314	Note: PHYS 1114 OR PHYS 1314□ General Physics II□ Honors General Physics II	3 3 3		3							3	
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4		3							3	
Required credits for Engineering Fundamental Courses			32-38	9	9	6	7	3	0	0	0	34	
Major Required Courses and Electives													
ELEC	1100	Introduction to Electro-Robot Design	4			4						4	
ELEC	1200	A System View of Communications: from Signals to Packets	4				4					4	
ELEC□ ELEC□ ELEC	□ 2100□ 2100H	Note: ELEC 2100 OR ELEC 2100H□ Signals and Systems□ Honors Signals and Systems	4 4 4					4				4	
ELEC	2350	Introduction to Computer Organization and Design	4					4				4	
ELEC	2400	Electronic Circuits	4				4					4	
ELEC	2910	Academic and Professional Development I	0			0	0					0	
ELEC□ □ □ ELEC□ ELEC□ ELEC□ ELEC	□ □ □ 2991□ 4900□ 4901□ 4910	Note: [ELEC 2991 AND (ELEC 4900 OR ELEC 4901)]□ OR [ELEC 4910] (Students taking the Research Option□ must take ELEC 4901)□ Industrial Experience (Electronic Engineering)□ Final Year Design Project□ Final Year Thesis□ Co-op Program	6 0 6 6 6				0	0	0	3*	3	6	1) "0" refers to ELEC2991. 2) Students should complete safety training and internship/ industrial training to get pass of ELEC2991. ELEC2991 is not required for students taking ELEC4910 but they should complete the safety training in order to get full pass of the course.
ELEC	3910	Academic and Professional Development II	0					0	0			0	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
LANG	4031	Technical Communication II for ECE & CPEG	3							3		3	
ELEC		ELEC 3000-level or above Electives (Courses of the subject and level as specified, out of which at least 2 courses must be at 4000-level. ELEC 4940 cannot be used to count towards this elective requirement)	21					4	11	3	3	21	
Required credits for Major Required Courses and Electives			50	0	0	4	8	12	11	9	6	50	
Option Requirements													
Research Option													
ELEC	5900	Modern Engineering Research Methodologies	1						1			1	
		Advanced Elective Courses approved by advisor (at least one UROP course taken prior to the commencement of Final Year Thesis, and one PG-level course)	6						0	3	3	6	
Required credits for Research Option			7	0	0	0	0	0	1	3	3	7	
AI Requirements													
Recommended Background Courses													
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0	
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0	
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				4					4	
Required credits for AI Recommended Background Courses			9-11	0	0	0	4	0	0	0	0	4	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3						3			3	
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5				(4)					0	
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3	
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3	
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0	
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9						0	3	6	9	
Required credits for AI Required Courses and Electives			22-23	0	0	0	0	3	6	3	6	18	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	5	6	0	0	0	6	6	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1 ; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
Sub-total for University CORE			30	4	8	6	0	0	0	6	6	30	
				Term load (excl. free credits)									
				13	17	16	19	18	18	21	21		
				136 (w/o option) | 143w/ option)#									

<< Declaration of major

Notes:

* Courses offered in winter term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.

2022-23 ELEC (4Y) (2022-23 intake)

The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Industrial Engineering and Decision Analytics**		Pathway 1									
Program:		**BEng in Industrial Engineering and Engineering Management + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec□ □ Profile: Normative									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□ □	□ □	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□	3-5										
COMP□ COMP□ COMP□ COMP	1021□ 1022P□ 2011□ 2012H	Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3 3 4 5	3								3	
CHEM/PHYS□ CHEM□ PHYS□ PHYS	□ 1020□ 1112□ 1312	Note: CHEM 1020 OR PHYS 1112 OR PHYS 1312□ General Chemistry I□ General Physics I with Calculus□ Honors General Physics I	3 3 3 3	3								3	
LANG	2030	Technical Communication I	3			3						3	
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6	
MATH	2011	Introduction to Multivariable Calculus	3				3					3	
MATH	2111	Matrix Algebra and Applications	3			3						3	
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4		3							3	
		Required credits for Engineering Fundamental Courses	22-28	9	6	6	3	0	0	0	0	24	
Major Required Courses and Electives													
IEDA	1010	Academic and Professional Development I	0			0	0					0	
IEDA	1020	Academic and Professional Development II	0					0	0			0	
IEDA	1901	Industrial Training and Experience	0			0*	0^					0	
IEDA	2520	Probability for Engineers	3			3						3	
IEDA	2540	Statistics for Engineers	3				3					3	
IEDA	3010	Prescriptive Analytics	3					3				3	
IEDA	3230	Engineering Economics and Accounting	3				3					3	
IEDA	3250	Stochastic Models	3					3				3	
IEDA	3300	Industrial Data Systems	3				3					3	
IEDA	4100	Integrated Production Systems	3						3			3	
IEDA	4130	System Simulation	3						3			3	
IEDA□ □ IEDA□ IEDA	□ □ 4901□ 4960	Note: IEDA 4901 OR IEDA 4960 (Students taking the Research□ Option must take IEDA 4901)□ Final Year Thesis□ Industrial Engineering and Engineering Management Final Year Project	6 6 6							3	3	6	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
ECON□ ECON□ ECON	□ 2103□ 2113	Note: ECON 2103 OR ECON 2113□ Principles of Microeconomics□ Microeconomics	3 3 3					3				3	
LANG	4032	Technical Communication II for IEDA and ISDN	3						3			3	
IEDA		Industrial Engineering Electives (Courses from the specified elective list, of which at least 15 credits should be taken from 1 of the 2 areas and at least 6 credits outside that area.)	21					3	6	6	6	21	
		Required credits for Major Required Courses and Electives	57	0	0	3	9	12	15	9	9	57	
Option Requirements													
Financial Engineering Option													
IEDA	3330	Introduction to Financial Engineering	3					3				3	
IEDA/FINA/ISOM/RMBI		Financial Engineering Electives (2 courses from the specified elective list)	6							3	3	6	
		Required credits for Financial Engineering Option	9	0	0	0	0	3	0	3	3	9	
AI Requirements													
Recommended Background Courses													
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3	(3)								0	
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0	
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				(4)					0	
		Required credits for AI Recommended Background Courses	9-11	0	0	0	0	0	0	0	0	0	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3	
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			4						4	
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					3				3	
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3	
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0	
SBM/SENG/SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9							3	6	9	
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	3	3	6	22	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	8	3	6	0	0	3	3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
		Sub-total for University CORE	30	4	11	3	6	0	0	3	3	30	
				Term load (excl. free credits)									
				13	17	16	18	21	18	18	21		
				133 (w/o option) / 142 (w/ option)#									

<< Declaration of major

Notes:

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requireme

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The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< *Declaration of major*

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)											
Department:		**Division of Integrative Systems and Design**		Pathway 1											
Program:		**BSc in Integrative Systems and Design + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec□ □ Profile:											
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**		
Major Requirements															
Major Required Courses and Electives															
ISDN	1002	Redefining Problems for the Real Needs	3	3								3			
ISDN	1004	Sketching	1	1								1			
ISDN	1006	Human-centered Innovation	3		3							3			
ISDN	2001	Second Year Design Project I	1			1						1			
ISDN	2002	Second Year Design Project II	4				4					4			
ISDN	2200	Systems Thinking and Design	3			3						3			
ISDN	2300	Introduction to 3D Design	3	3								3			
ISDN	2400	Physical Prototyping	3		3							3			
ISDN	3001	Third Year Design Project I	4					4				4			
ISDN	3002	Third Year Design Project II	4						4			4			
ISDN	4001	Final Year Design Project I	5							5		5			
ISDN	4002	Final Year Design Project II	5								5	5			
COMP□ □ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 2011□ 2012H	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□ Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-5 3 3 4 5		3							3			
LANG	2030	Technical Communication I	3			3						3			
LANG	4032	Technical Communication II for IEDA and ISDN	3						3			3			
MATH□ □ □ □ MATH□ MATH□ MATH□ MATH□ MATH□ MATH	□ □ □ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [MATH 1012 OR MATH 1013 OR MATH 1023 AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020] (Subject□ to approval of the program office, MATH 1014/1024 may be□ replaced by a COMP course) □ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3	3	3							6	1) For students who chose the technical stream of Computer Science, MATH1014 is not a compulsory course.		
PHYS□ □ PHYS□ PHYS□ PHYS□ PHYS	□ □ 1101□ 1111□ 1112□ 1312	Note: PHYS 1101 OR PHYS 1111 OR PHYS 1112 OR□ PHYS 1312 □ Introductory Physics□ General Physics I□ General Physics I with Calculus□ Honors General Physics I	3-4 4 3 3 3	3								3			
ISDN/ENGG/IEDA		Design Electives (Courses from the specified elective list)	5				2	3				5			
ISDN/ENTR/SBM		Product Management and Entrepreneurship Electives (Courses from the specified elective list)	9						3	3	3	9			
SENG/MATH		Project-related Electives (Courses from the specified elective list. Students should seek approval of their advisor for the choices of courses.)	22			6	3	6	2	3	2	22			
Required credits for Major Required Courses and Electives			91-97	13	12	13	9	13	12	11	10	93			
AI Requirements															
Recommended Background Courses															
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3		(3)							0			
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3		(3)							0			
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4				4					4			
Required credits for AI Recommended Background Courses			9-11	0	0	0	4	0	0	0	0	4			
Major Required Courses and Electives															
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0			
EMIA	2020	Cross-disciplinary Design Thinking	3			3						3			
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5			(4)						0			
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3					(3)				0			
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3						3			3			
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3								0	0			
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9					3	3		3	9			
Required credits for AI Required Courses and Electives			22-23	0	0	3	0	3	6	0	3	15			
University CORE (Revamped)															
CORE	C3 - C12	U CORE - Others	24	1	2	3	6	3	0	6	3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2		
CORE	C1 & C2	U CORE - English Language	6	3	3							6			
Sub-total for University CORE			30	4	5	3	6	3	0	6	3	30			
				Term load (excl. free credits)											
				17	17	19	19	19	18	17	16				
				142 (with AI)#											

<< *Declaration of major*

Notes:

* Courses offered in winter term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

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The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< Declaration of major

School:		**School of Engineering**		Student's Pathways (i.e. Study Pattern)									
Department:		**Department of Mechanical and Aerospace Engineering**		Pathway 1									
Program:		**BEng in Mechanical Engineering + Extended Major in Artificial Intelligence**		Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS)□ □ Profile: Normative.□Students to graduate in BEng MECH with Engineering Design Option									
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**
Major Requirements													
Engineering Fundamental Courses													
COMP□	□	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□	3-5										
□	□	COMP 2012H□											
COMP□	1021□	Introduction to Computer Science□	3	3								3	
COMP□	1022P□	Introduction to Computing with Java□	3										
COMP□	2011□	Programming with C++□	4										
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5										
LANG	2030	Technical Communication I	3			3						3	
MATH□	□	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□	4-7										
□	□	(MATH 1014 OR MATH 1024)] OR [MATH 1020]□											
MATH□	1012□	Calculus IA□	4										
MATH□	1013□	Calculus IB□	3	3	3							6	
MATH□	1014□	Calculus II□	3										
MATH□	1020□	Accelerated Calculus□	4										
MATH□	1023□	Honors Calculus I□	3										
MATH	1024	Honors Calculus II	3										
MATH	2011	Introduction to Multivariable Calculus	3			3						3	
MATH□	□	Note: MATH 2111 OR MATH 2350 OR MATH 2351□	3										
MATH□	2111□	Matrix Algebra and Applications□	3				3					3	
MATH□	2350□	Applied Linear Algebra and Differential Equations□	3										
MATH	2351	Introduction to Differential Equations	3										
PHYS□	□	Note: PHYS 1112 OR PHYS 1312□	3										
PHYS□	1112□	General Physics I with Calculus□	3		3							3	
PHYS	1312	Honors General Physics I	3										
CHEM/LIFS/PHYS		Science 1000-level course (1 course from the specified course list)	3-4		3							3	
		Required credits for Engineering Fundamental Courses	22-28	6	9	6	3	0	0	0	0	24	
Major Required Courses and Electives													
MECH	1906	Mechanical Engineering for Modern Life	3	3								3	
MECH	1990	Industrial Training	0			0*	[0^]					0	
MECH	2020	Statics and Dynamics	3			3						3	
MECH	2040	Solid Mechanics I	3				3					3	
MECH	2210	Fluid Mechanics	3				3					3	
MECH	2310	Thermodynamics	3			3						3	
MECH	2410	Engineering Materials I	3				3					3	
MECH	2520	Design and Manufacturing I	3				3					3	
MECH	3030	Mechanisms of Machinery	3					3				3	
MECH□	□	Note: MECH 3300 OR MECH 3420 OR MECH 3520 OR□	3										
□	□	MECH 3710□											
MECH□	3300□	Energy Conversion□	3					3				3	
MECH□	3420□	Engineering Materials II□	3										
MECH□	3520□	Design and Manufacturing II□	3										
MECH	3710	Manufacturing Processes and Systems	3										
MECH	3310	Heat Transfer	3					3				3	
MECH	3610	Control Principles	3					3				3	
MECH	3630	Electrical Technology	3						3			3	
MECH	3830	Laboratory	3						3			3	
MECH	3907	Mechatronic Design and Prototyping	3						3			3	
MECH	4900	Final Year Design Project	6							3	3	6	
ELEC	2420	Basic Electronics	3			3						3	
ENGG	2010	Engineering Seminar Series	0			0	0	0	0			0	
LANG	4034	Technical Communication II for Mechanical and Aerospace Engineering	3						3			3	
		Required credits for Major Required Courses and Electives	54	3	0	9	12	12	12	3	3	54	
Option Requirements													
Engineering Design Option													
MECH		MECH Electives in Engineering Design (3 courses from the specified elective list. Courses taken as Major Required Courses or Elective Courses of other MECH Options may not be counted towards this elective requirement.)	9							3	6	9	
		Required credits for Engineering Design Option	9	0	0	0	0	0	0	3	6	9	
AI Requirements													
Recommended Background Courses													
COMP/ISOM		Note: COMP 1021 OR COMP 1022P OR ISOM 3230	3										
COMP	1021	Introduction to Computer Science	3	(3)								0	
COMP	1022P	Introduction to Computing with Java	3										
ISOM	3230	Business Applications Programming	3										
MATH		Note: MATH 1014 OR MATH 1020 OR MATH 1024	3-4										
MATH	1014	Calculus II	3		(3)							0	
MATH	1020	Accelerated Calculus	4										
MATH	1024	Honors Calculus II	3										
ISOM/MATH		Note: ISOM 2500 OR MATH 2411	3-4										
ISOM	2500	Business Statistics	3				4					4	
MATH	2411	Applied Statistics	4										
		Required credits for AI Recommended Background Courses	9-11	0	0	0	4	0	0	0	0	4	
Major Required Courses and Electives													
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0			0						0	
EMIA	2020	Cross-disciplinary Design Thinking	3					3				3	
COMP		Note: COMP 2011 OR COMP 2012 OR COMP 2012H	4-5										
COMP	2011	Programming with C++	4			4						4	
COMP	2012	Object-Oriented Programming and Data Structures	4										
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5										
COMP		Note: COMP2211 OR COMP3211											
COMP	2211	Exploring Artificial Intelligence	3					3				3	
COMP	3211	Fundamentals of Artificial Intelligence											
COMP/EMIA/MATH		Note: COMP 4211 OR EMIA 4110 OR MATH 4432	3										
COMP	4211	Machine Learning	3						3			3	
EMIA	4110	Practical Machine Learning	3										
MATH	4432	Statistical Machine Learning	3										
EMIA		Note: EMIA 4990 OR EMIA 4991	0-3										
EMIA	4990	Interdisciplinary Capstone Project	0								0	0	
EMIA	4991	Interdisciplinary Capstone Project	3										
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits	6-9										
		AI Electives							3	3	3	9	
		Required credits for AI Required Courses and Electives	22-23	0	0	4	0	6	6	3	3	22	
University CORE (Revamped)													
CORE	C3 - C12	U CORE - Others	24	1	2			3	3	9	6	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1; Spring: 2
CORE	C1 & C2	U CORE - English Language	6	3	3							6	
		Sub-total for University CORE	30	4	5	0	0	3	3	9	6	30	
				Term load (excl. free credits)									
				13	14	19	19	21	21	18	18		
				134 (w/o option) | 143 (w/ option)#									

<< Declaration of major

Notes:

[ ] denotes the course is also offered in other terms as indicated and students may take the course in one of these terms subject to advice by the program office.

* Courses offered in winter term

^ Courses offered in summer term

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requiremen

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The Hong Kong University of Science and Technology

School of Engineering

An Example on Student's Pathway (as of Fall 2022-23)

<< *Declaration of major*

School:		**School of Engineering**			Student's Pathways (i.e. Study Pattern)										
Department:		**Department of Chemical and Biological Engineering**			Pathway 1										
Program:		**BEng in Sustainable Energy Engineering + Extended Major in Artificial Intelligence**			Background: HKDSE 4 Core + 2 Elec (incl. 1/2x PHYS, 1/2x CHEM)□ □ Profile: Normative										
Course □ Offering□ Dept□ (course code prefix)	Course Code	Course Title / Courses List	Credits	Extra English Credits Attained	Year 1 Fall	Year 1 Spring	Year 2 Fall	Year 2 Spring	Year 3 Fall	Year 3 Spring	Year 4 Fall	Year 4 Spring	**Sub-total**	**Remarks**	
Major Requirements															
Engineering Fundamental Courses															
COMP□ □ COMP□ COMP□ COMP□ COMP	□ □ 1021□ 1022P□ 2011□ 2012H	Note: COMP 1021 OR COMP 1022P OR COMP 2011 OR□ COMP 2012H□ Introduction to Computer Science□ Introduction to Computing with Java□ Programming with C++□ Honors Object-Oriented Programming and Data Structures	3-5 3 3 4 5			3							3		
ELEC/MATH□ □ ELEC□ ELEC□ MATH□ MATH MATH	□ □ 2600□ 2600H□ 2011□ 2111□ 2351	Note: (ELEC 2600 OR ELEC 2600H) OR MATH 2011 OR□ MATH 2111 OR MATH 2351 (3 courses out of 5)□ Probability and Random Processes in Engineering□ Honors Probability and Random Processes in Engineering□ Introduction to Multivariable Calculus□ Matrix Algebra and Applications□ Introduction to Differential Equations	9-10 4 4 3 3 3					6	3					9	
CHEM	1020	General Chemistry I	3		3									3	
LANG	2030	Technical Communication I	3				3							3	
MATH□ □ MATH□ MATH□ MATH□ MATH□ MATH	□ □ 1012□ 1013□ 1014□ 1020□ 1023□ 1024	Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND□ (MATH 1014 OR MATH 1024)] OR [MATH 1020]□ Calculus IA□ Calculus IB□ Calculus II□ Accelerated Calculus□ Honors Calculus I□ Honors Calculus II	4-7 4 3 3 4 3 3		3	3							6		
PHYS□ PHYS□ PHYS	□ 1112□ 1312	Note: PHYS 1112 OR PHYS 1312□ General Physics I with Calculus□ Honors General Physics I	3 3 3		3								3		
PHYS□ PHYS□ PHYS	□ 1114□ 1314	Note: PHYS 1114 OR PHYS 1314□ General Physics II□ Honors General Physics II	3 3 3			3							3		
SENG		Engineering Introduction course (If the students take an introduction course included in their major, this course can be counted towards their major requirement.)	3-4		3								3		
		Required credits for Engineering Fundamental Courses	31-38		12	9	9	3	0	0	0	0	33		
Major Required Courses and Electives															
ENEG	2910	Industrial Training	0									0	0		
ENEG	2990	Academic and Professional Development I	0				0						0		
ENEG	3110	Materials for Energy Technologies	3						3				3		
ENEG/PPOL□ ENEG□ PPOL	□ 3220□ 3210	Note: ENEG 3220 OR PPOL 3210□ Energy Initiatives Forging Future Engineers□ Energy Policy	3 3 3							3			3		
ENEG	3910	Sustainable Energy Laboratory	3							3			3		
ENEG	4920	Final Year Design Project	6								3	3	6		
ENEG	4990	Academic and Professional Development II	0								0		0		
CENG/MECH/SUST□ CENG□ MECH□ SUST	□ 1700□ 1902□ 1000	Note: CENG 1700 OR MECH 1902 OR SUST 1000□ Introduction to Environmental Engineering□ Energy Systems in a Sustainable World□ Introduction to Sustainability	3 3 3 3		[3]	3							3	CENG1700 will be offered in the Fall	
CENG/MECH□ CENG□ MECH	□ 2210□ 2310	Note: CENG 2210 OR MECH 2310□ Chemical and Biological Engineering Thermodynamics□ Thermodynamics	3 3 3					3					3		
CENG/MECH□ CENG□ MECH	□ 2220□ 2210	Note: CENG 2220 OR MECH 2210□ Transport Phenomena I□ Fluid Mechanics	3 3 3					3					3		
CENG/MECH□ CENG□ MECH	□ 3220□ 3310	Note: CENG 3220 OR MECH 3310□ Transport Phenomena II□ Heat Transfer	3 3 3						3				3		
CIVL	2410	Environmental Assessment and Management	3					3					3		
ELEC	2420	Basic Electronics	3				3						3		
ENGG	2010	Engineering Seminar Series	0				0						0		
MECH	3300	Energy Conversion	3						3				3		
MECH	3630	Electrical Technology	3							3			3		
LANG	4035	Technical Communication II for Chemical and Biological Engineering	3							3			3		
SENG		Area Electives (6 courses from the specified elective list, of which at least 1 course should be taken from each area except Research)	18								6	12	18		
		Required credits for Major Required Courses and Electives	60		0	3	3	9	9	12	9	15	60		
AI Requirements															
Recommended Background Courses															
COMP/ISOM COMP COMP ISOM	 1021 1022P 3230	Note: COMP 1021 OR COMP 1022P OR ISOM 3230 Introduction to Computer Science Introduction to Computing with Java Business Applications Programming	3 3 3 3			(3)							0		
MATH MATH MATH MATH	 1014 1020 1024	Note: MATH 1014 OR MATH 1020 OR MATH 1024 Calculus II Accelerated Calculus Honors Calculus II	3-4 3 4 3			(3)							0		
ISOM/MATH ISOM MATH	 2500 2411	Note: ISOM 2500 OR MATH 2411 Business Statistics Applied Statistics	3-4 3 4					3					3		
		Required credits for AI Recommended Background Courses	9-11		0	0	0	3	0	0	0	0	3		
Major Required Courses and Electives															
EMIA	2010A	Cross-disciplinary Seminar in Artificial Intelligence	0				0						0		
EMIA	2020	Cross-disciplinary Design Thinking	3						3				3		
COMP COMP COMP COMP	 2011 2012 2012H	Note: COMP 2011 OR COMP 2012 OR COMP 2012H Programming with C++ Object-Oriented Programming and Data Structures Honors Object-Oriented Programming and Data Structures	4-5 4 4 5				4						4		
COMP COMP COMP	 2211 3211	Note: COMP2211 OR COMP3211 Exploring Artificial Intelligence Fundamentals of Artificial Intelligence	3						3				3		
COMP/EMIA/MATH COMP EMIA MATH	 4211 4110 4432	Note: COMP 4211 OR EMIA 4110 OR MATH 4432 Machine Learning Practical Machine Learning Statistical Machine Learning	3 3 3 3							3			3		
EMIA EMIA EMIA	 4990 4991	Note: EMIA 4990 OR EMIA 4991 Interdisciplinary Capstone Project Interdisciplinary Capstone Project	0-3 0 3									0	0		
SBM/SENG/ SSCI/IPO		Note: Students taking EMIA4990 should take a minimum of 9 credits; students taking EMIA4991 should take a minimum of 6 credits AI Electives	6-9							6	3		9		
		Required credits for AI Required Courses and Electives	22-23		0	0	4	0	6	9	3	0	22		
University CORE (Revamped)															
CORE	C3 - C12	U CORE - Others	24		1	5	3	3	3		6	3	24	The credit load of CORE1905 (HMW) will usually be spread in the following pattern: Fall: 1 ; Spring: 2	
CORE	C1 & C2	U CORE - English Language	6	6	3	3							6		
		Sub-total for University CORE	30		4	8	3	3	3	0	6	3	30		
				6	Term load (excl. free credits)										
					16	20	19	18	18	21	18	18			
					148#										

<< *Declaration of major*

Note:

To graduate, students should complete at least 120 credits in approved courses. They may need to take courses additional to the required and elective courses as specified above to meet this minimum credit requirement.

>> The content of this example is not necessarily equivalent to a complete list of graduation requirements of the program. Students should refer to the Program Catalog for updated graduation requirements. For up-to-date information on course offering and scheduling, students should check it out from respective School and Department.