

**CURRICULUM FOR COMPUTER ENGINEERING
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN SUSTAINABILITY (CESN)
(FIRST YEAR ADMISSION)
AY2025 Intake**

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Major Requirements			Interdisciplinary Collaborative Core			BDE	Total AU
	School Core	CNYS-Core	MPE	CC	Professional Series	Care, Serve, Learn		
1	12	27 [3]	0	2	3	0	0	44 [3]
2	23 [2]	6	0	8	0	3	4	44 [2]
3	16	0	9	0	6	0	15	46
4	8	0	6	0	0	0	10	24
Total	59 [2]	33 [3]	15	10	9	3	29	158 [5]

[] AU of courses that could be used to fulfil Core requirement and second major requirement concurrently

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite
CY1001	Cell	CNY-Core	3	CNYS- Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1500	Introduction to Research	CNY-Core	2	
CY1601	Mathematics I	CNY-Core	4	
SC1003	Introduction to Computational Thinking and Programming	PS	3	Nil
CC0015	Healthy Living & Wellbeing	CC	2	Nil
			21	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite
CY1007^	Climate Change	CNY-Core	3	Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYS- Course
SC1005	Digital Logic	C	3	Nil
SC1006	Computer Organisation & Architecture	C	3	SC1005 (co-req)
SC1007	Data Structures and Algorithms	C	3	SC1003
SC1008	C and C++ Programming	C	3	SC1003
			19	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite
CY2003	Research Attachment 3	CNY-Core	4	CNYS- Course
	Overseas Learning Trip			
			4	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYS- Course
SC5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
SC2000	Probability and Statistics for Computing	C	3	MH1810
SC2104	Sensors, Interfacing & Digital Control	C	3	SC1006
SC2107	Microprocessor System Design and Development	C	3	SC1006
MH1812	Discrete Mathematics	C	3	Nil
SP0061	Science & Technology for Humanity	CC	3	Only for Premier Scholars Programme Students
EG1001^	Engineers in Society	C	2	Double-counted as Practice Core
NH0001	Tech-For-Good (T4G)	CSL	3	Replaces Care, Serve, Learn
			23	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite
CY0002	Ethics	CNY-Core	3	CNYS- Course
SC5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
SC2001	Algorithm Design and Analysis	C	3	SC1007, MH1812
SC2002	Object Oriented Design & Programming	C	3	SC1003
SC2103	Digital System Design	C	3	SC1005
CC0006	Sustainability: Society, Economy & Environment	CC	3	Nil
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	Nil
			21	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite
SC2006	Software Engineering	C	3	SC2002
SC3XXX/SC4XXXX	Major Prescribed Elective (Choose within SC3XXX/SC4XXXX)	MPE	3	
SC4XXX	Major Prescribed Elective (Choose within SC4XXX)	MPE	3	
	Second Major Compulsory Course 3	BDE	3	Please see attached list of core courses to choose from
	Second Major Compulsory Course 4	BDE	3	
	Second Major Compulsory Course 5	BDE	3	
MLXXXX	Profession Preparation	PS	1	
			19	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite
SC2005	Operating Systems	C	3	SC1006, SC1007
SC2008	Computer Networks	C	3	CY1602, SC2000
SC2079	Multidisciplinary Design Project	C	4	SC2001 & SC2006
SC3102	Signal, Systems and Transform	C	3	CY1602
SC4XXX	Major Prescribed Elective (Choose within SC4XXX)	MPE	3	
	SN Elective 1	BDE	3	Please see attached list of electives to choose from
	SN Elective 2	BDE	3	
			22	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite
SC3910	Professional Attachment	PS	5	Year 3 Standing
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite
SC4211	CNYSO Overseas Final Year Project	C	8	CNYSO Course
			8	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite
SC4XXX	Major Prescribed Elective (Choose within SC4XXX)	MPE	3	
SC4XXX	Major Prescribed Elective (Choose within SC4XXX)	MPE	3	
	SN Elective 3	BDE	3	Please see attached list of electives to choose from
	SN Elective 4	BDE	4	
ES5100	Second Major Interdisciplinary Project	BDE	3	
			16	

Total AU for Graduation:

158

^ These courses are double-counted towards both CE as well as the Second Major in Sustainability.

Important Note:

- Students are required to complete 5 Major Prescribed Electives (MPE) courses, of which at least 4 must be at the SC4xxx level.

MPE Structure for Computer Engineering			
Course Code	Type	AU	Remarks
SC3xxx/SC4xxx	MPE-1	3	Any MPE (Choose within SC3xxx/SC4xxx)
SC4xxx	MPE-2	3	Choose within SC4xxx
SC4xxx	MPE-3	3	Choose within SC4xxx
SC4xxx	MPE-4	3	Choose within SC4xxx
SC4xxx	MPE-5	3	Choose within SC4xxx
	Total	15	

Please refer to the CE MPE Courses and Elective Focus Areas on CCDS intranet.

For Second Major in Sustainability, students are required to complete a minimum total of 30 AU:

- 5 compulsory courses, 1 course in each knowledge area (5 courses x 3AU = 15 AU)
- Minimum total of 12 AU of Core and/or Elective courses of any knowledge area
- Interdisciplinary project: ES5100 Sustainability Capstone Project (3 AU)

Sustainability Course Listing				
Knowledge Area	Course Title	Type	AU	Remarks
People	To choose 1 of the courses under the People core courses	2M-SUST-C (BDE)	3	Refer to syllabus
Planet	CY1007 Climate Change	2M-SUST-C (BDE)	3	Double counted with CN Yang Core
Policy	To choose 1 of the courses under the Policy core courses	2M-SUST-C (BDE)	3	Refer to syllabus
Practice	To choose 1 of the courses under the Practice core courses	2M-SUST-C (BDE)	3	Refer to syllabus
Profit	To choose 1 of the courses under the Profit core courses	2M-SUST-C (BDE)	3	Refer to syllabus
Practice	EG1001 Engineers in Society (Sustainability - Elective)	2M-SUST (BDE)	2	Double counted with CE Core
Choose 10 AU of Core/Elective from any knowledge areas	Sustainability - Elective	2M-SUST (BDE)	3	Refer to syllabus
	Sustainability - Elective	2M-SUST (BDE)	3	Refer to syllabus
	Sustainability - Elective	2M-SUST (BDE)	4	Refer to syllabus
	ES5100 Sustainability - Interdisciplinary Project	2M-SUST (BDE)	3	Refer to syllabus
TOTAL			30	

Please refer to the Second Major in Sustainability website for Sustainability Course Listing:
<https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability>