

**CURRICULUM FOR COMPUTER ENGINEERING
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN DATA ANALYTICS (CEDA)
(FIRST YEAR ADMISSION)
AY2026 Intake Onwards**

SUMMARY OF ACADEMIC UNIT REQUIREMENT

Year of Study	Major Requirements			Interdisciplinary Collaborative Core			BDE	Total AU
	School Core	CNYS-P-Core	MPE	CC	Professional Series	Care, Serve, Learn		
1	16 [7]	23	0	5	4 [2]	0	0	48 [9]
2	20 [3]	6	0	5	0	3	4	38 [3]
3	18	0	6	0	6	0	12	42
4	8	0	9	0	0	0	6	23
Total	62 [10]	29	15	10	10 [2]	3	22	151 [12]

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

YEAR 1 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite
CY1001	The Systems Architecture of Life	CNY-Core	3	CNYS-P Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1601	Mathematics I	CNY-Core	4	
SC1001^	Introduction to Computational Thinking & Programming	PS	2	Nil
SC1005	Digital Logic	C	3	Nil
NH0007	Critical Perspectives on Technology and Society	CC	3	
			22	

YEAR 1 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite
CY1007	Climate Change	CNY-Core	3	CNYS-P Courses
CY1500	Introduction to Research	CNY-Core	2	
SC1002	AI Foundations	PS	2	
SC1004^	Linear Algebra for Computing	C	4	MH1810, SC1003
SC1006	Computer Organisation & Architecture	C	3	SC1005
SC1007^	Data Structures and Algorithms	C	3	SC1003
SC1008	C and C++ Programming	C	3	SC1003
CC0015	Healthy Living & Wellbeing	CC	2	Nil
			22	

YEAR 1 SPECIAL SEMESTER

Course Code	Course Title	Type	AU	Pre-Requisite
CY2003	Research Attachment 3	CNY-Core	4	CNYS-P Course
	Overseas Learning Trip			
			4	

YEAR 2 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite
CY0001	Language & Logic	CNY-Core	3	CNYS-P 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
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
NH0001	Tech-for-Good Service Learning	CSL	3	Nil
			20	

YEAR 2 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite
CY0002	Ethics	CNY-Core	3	CNYS-P Course
SC5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
SC2001	Algorithm Design and Analysis	C	3	SC1007, MH1812
SC2003	Object Oriented Design & Programming	C	2	SC1003
SC2103	Digital System Design	C	3	SC1005
CC0006	Sustainability: Society, Economy & Environment	CC	3	Nil

			18	
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YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite
EG1001	Engineers in Society	C	2	Nil
SC2006	Software Engineering	C	3	SC2002
SC2207	Introduction to Database	BDE	3	SC2001
SC4020	Data Analytics and Mining	BDE	3	SC2001
SC4024	Data Visualization	BDE	3	SC1003, SC2000
SC3xxx/SC4xxx	Major Prescribe Elective (Choose within SC3xxx/SC4xxx)	MPE	3	
MLXXXX	Profession Preparation	PS	1	
			18	

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 Prescribe Elective (Choose within SC4xxx)	MPE	3	
XXXXXX	DA Elective 1	BDE	3	
			19	

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
XXXXXX	DA Elective 2	BDE	3	
XXXXXX	DA Elective 3	BDE	3	
SC4XXX	Major Prescribe Elective (Choose within SC4xxx)	MPE	3	
SC4XXX	Major Prescribe Elective (Choose within SC4xxx)	MPE	3	
SC4XXX	Major Prescribe Elective (Choose within SC4xxx)	MPE	3	
			15	

Total AU for Graduation: **151**

^ These courses can be double-counted towards both CE as well as the Second Major in Data Analytics, up to max of 12AUs.

Compulsory Courses for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
Core	SC2000	Probability and Statistics for Computing	3	1	MH1810
Core	SC1004	Linear Algebra for Computing	3	2	MH1810, SC1003
Core	SC1003	Introduction to Computational Thinking & Programming	3	1	-
Core	SC1007	Data Structures and Algorithms	3	1, 2	SC1003
BDE	SC2207	Introduction to Database	3	1, 2	SC2001
BDE	SC4020	Data Analytics and Mining	3	1	SC2001
BDE	SC4024	Data Visualization	3	1	SC1003, SC2000

Suggested Electives for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	SC3020	Database System Principle	3	2	SC2107
BDE	SC4021	Information Retrieval	3	2	SC2001
BDE	SC4022	Network Science	3	2	SC2001

Important Note:

1. 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.			