

**AY2023-24 CURRICULUM FOR BACHELOR OF ENGINEERING (INFORMATION ENGINEERING & MEDIA)  
WITH CN YANG SCHOLARS PROGRAMME  
SECOND MAJOR IN DATA ANALYTICS (IEDA)  
(FIRST YEAR ADMISSION)**

Last Updated : 19-Apr-23

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYS-SP-Core	MPE	CC	FC	BDE	Total AU
1	11	23	0	5	0	0	39
2	17	10	0	8	3	0	38
3	15	0	18	0	5	8	46
4	11	0	6	0	0	10	27
<b>Total</b>	<b>54</b>	<b>33</b>	<b>24</b>	<b>13</b>	<b>8</b>	<b>18</b>	<b>150</b>

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYS-SP Courses
CY1101	Molecule	CNY-Core	4	
CY1308	Physics	CNY-Core	3	
CY1500	Introduction to Research	CNY-Core	2	
CY1601	Mathematics I	CNY-Core	4	
EG1001	Engineers in Society	C	2	
CC0002	Navigating the Digital World	CC	2	
			<b>20</b>	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007	Climate Change	CNY-Core	3	CNYS-SP Course
IE1005^	From Computational Thinking to Programming	C	3	
IE2108^	Data Structure and Algorithm	C	3	
IM1002	Analog Electronics	C	3	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			<b>15</b>	

YEAR 1 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY2003	Research Attachment 3	CNY-Core	4	CNYS-SP Course
	Overseas Learning Trip			
			<b>4</b>	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYS-SP Course
DA1000	Thinking and Communicating Visually I	C	3	
IE0005	Introduction to Data Science and Artificial Intelligence	FC	3	IE1005
IE2106	Engineering Mathematics I	C	3	CY1602
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
			<b>17</b>	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYS-SP Course
CY2001	Research Attachment 1	CNY-Core	4	CNYS-SP Course 2-semester long, course registered only in Sem 2 (similar to URECA)
IM1003	Object-Oriented Programming	C	3	
IE2104	Digital Electronics	C	3	
IE2107^	Engineering Mathematics II	C	3	CY1602
IM2073	Introduction to Design & Project	C	2	
SP0061	Science & Technology for Humanity	CC	3	
			<b>21</b>	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
IE3017	Computer Communications	C	3	
IE2110	Signals and Systems	C	3	
IM3180	Design & Innovation Project	C	3	
IE4483	Artificial Intelligence & Data Mining	BDE	3	IE2107 & IE0005

IE4491^	Probability Theory & Applications	MPE	3	IE2110 Technical Elective 1
IM300X	Prescribed Elective 1	MPE	3	
SC4024	Data Visualization	BDE	3	IE1005 & IE2106/IE4491
			21	

#### YEAR 3 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
IE4001	Software Engineering	C	3	
IM300X	Prescribed Elective 2	MPE	3	
IM300X	Prescribed Elective 3	MPE	3	
IE4414	Machine Learning Design & Application	BDE	2	EE/IE4483
IEXXXX	Design Elective 1	MPE	3	
IEXXXX	Technical Elective 2	MPE	3	
DA2002	Thinking and Communicating Visually II	C	3	
			20	

#### YEAR 3 SPECIAL SEMESTER

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
IM3276	Professional Attachment	FC	5	
			5	

#### YEAR 4 SEMESTER 1

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
IM4081	CNYSF Overseas Final Year Project	C	8	CNYSF Course
			8	

#### YEAR 4 SEMESTER 2

Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
DA3000	Thinking and Communicating Visually III	C	3	DA1000
IEXXXX	Design Elective 2/ Technical Elective 3	MPE	3	
IEXXXX	Technical Elective 3/4	MPE	3	
BC2402	Designing & Developing Databases	BDE	4	
EE4497	Pattern Recognition & Machine Learning	BDE	3	IE2106
MS4671	Introduction to Materials Simulation	BDE	3	IE1005 & IE0005
			19	

Total AU for Graduation: 150

^ These courses are double-counted towards both IEM as well as the Second Major in Data Analytics.

#### Compulsory Courses for Second Major in Data Analytics

Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
MPE	EE4491	Probability Theory & Applications	3	1	IE2110/IM2004
Core	IE2107	Engineering Mathematics II	3	2	CY1602
Core	IE1005	From Computational Thinking to Programming	3	1	-
Core	IE2108	Data Structures & Algorithms	3	1	-
BDE	BC2402	Designing & Developing Databases	4	1	-
BDE	EE4483	Artificial Intelligence & Data Mining	3	1	EE2107 & EE0005
BDE	SC4024	Data Visualization	3	1	EE1005 & IE2106/EE4491

#### Electives for Second Major in Data Analytics

Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
BDE	EE4414	Machine Learning Design & Application	2	2	EE/IM4483
BDE	EE4497	Pattern Recognition & Machine Learning	3	2	EE2006/IE2106
BDE	MS4671	Introduction to Materials Simulation	3	2	EE1005 & EE0005

List of Eligible Electives can be found at the following link: <https://www.ntu.edu.sg/engineering/admissions/ug/allprogrammes/highlights/da>