AY2025-26 CURRICULUM FOR BACHELOR OF ENGINEERING (ROBOTICS)
CN YANG SCHOLARS PROGRAMME - SECOND MAJOR IN DATA ANALYTICS
(FIRST YEAR ADMISSION)

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	19	23		2	3	3	50
2	26	10		11		3	50
3	16		3		5	6	30
4	8		3			6	17
Total	**69**	**33**	**6**	**13**	**8**	**18**	**147**

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY1001	Cell	CNYSP-Core	3	
CY1101	Molecule	CNYSP-Core	4	
CY1308	Physics	CNYSP-Core	3	
CY1500	Introduction to Research	CNYSP-Core	2	
CY1601	Mathematics I	CNYSP-Core	4	
MA1008˜	Introduction to Computational Thinking	C	3	
MA2009	Introduction to Electrical & Electronic Devices	C	3	
MA1601^	Introduction to Robotics	C	2	
			24	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY1007	Climate Change	CNYSP-Core	3	
MA1001	Dynamics	C	3	
MA2001	Mechanics of Materials	C	3	
MA1602^	Robotics Programming Fundamentals	C	3	
MA0218	Introduction to Data Science and Artificial Intelligence	FC	3	
EG1001	Engineers in Society	C	2	
CC0002	Navigating the Digital World	CC	2	
MH1403	Algorithms and Computing	BDE	3	PS0001/MA1008
			22	

YEAR 1 SPECIAL TERM				
Course Code	Course Title	Type	AU	Remarks
CY2003	Research Attachment 3 (Making and Tinkering)	CNYSP-Core	4	
	Overseas Learning Trip			
			4	

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY0001	Writing Across The Disciplines	CNYSP-Core	3	
MA2002	Theory of Mechanism	C	3	
MA2005	Engineering Graphics	C	3	
MA2006˜	Engineering Mathematics	C	3	
MA2601*	Mechatronics System Interfacing & Design	C	3	
CC0005	Healthy Living & Mental Wellbeing	CC	3	
SP0061	Science & Technology for Humanity	CC	3	
SC2207	Introduction to Database	BDE	3	MH1403
			24	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY0002	Ethics	CNYSP-Core	3	
CY2001	Research Attachment 1	CNYSP-Core	4	
MA2079	Engineering Innovation and Design	C	2	
MA2602*	Sensing and Sensors	C	3	
MA2603*	Mechanics and Modelling of Robot Manipulators	C	3	
MA3001	Machine Element Design	C	3	
MA3005*	Control Theory and Applications	C	3	
CC0006	Sustainability: Human, Social, Economic & Environment	CC	3	
ML0004	Career and Entrepreneurial Development for the Future W	CC	2	
			26	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
MA3601^	Linear Systems & Control	C	3	
MA3602^	Mobile Robot Navigation & Motion Planning	C	3	
MA3603*	Machine Intelligence for Robotics	C	3	
MA3604^	Robot Vision	C	3	
MA4849	Operations Reasearch	BDE	3	
			15	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
MA4601*	Robotic Engineering Design	C	4	
MA4829	Machine Intelligence	BDE	3	
MA4861~	Realtime Operating System for Robotics	MPE	3	
			10	

YEAR 3 SPECIAL TERM				
Course Code	Course Title	Type	AU	Remarks
MA3910	Professional Attachment	FC	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
MA4832~	Microprocessor System	MPE	3	
SC4020	Data Analytics and Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	MA1008 & MA4849
			9	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
MA4211	CNYSP Overseas Final Year Project	C	8	Year 4 Standing
			8	
	Total AUs required for graduation:		147	

YEAR 4 MPE/BDE				
Course Code	Course Title	Type	AU	Remarks
MA4832	Microprocessors System	MPE/BDE	3	
MA4853	Manufacturing Systems	MPE/BDE	3	
MA4861*	Realtime Operating System for Robotics	MPE/BDE	3	
MA4862^	Human-Robot Interaction	MPE/BDE	3	
MA4863^	Robotics Competition	MPE/BDE	3	
MA4864^	Advanced Robotics Technology and Applications	MPE/BDE	3	
MA4878	Unmanned Aerial Vehicles	MPE/BDE	3	
EE4285@	Computational Intelligence	MPE/BDE	3	
IE4476@	Image Processing & Computer Vision	MPE/BDE	3	
EE4273@	Digital Control Systems	MPE/BDE	3	
SC4002@	Natural Language Processing	MPE/BDE	3	
SC4020@	Data Analytics & Mining	MPE/BDE	3	
SC4060@	Virtual & Augmented Reality	MPE/BDE	3	
SC4061@	Computer Vision	MPE/BDE	3	

* Existing courses with modification in course title and course contents.

^ New courses to be developed.

@ Courses offered by other Schools.

~ Courses are double-counted towards both Robotics as well as the Second Major in Data Analytics.

Second Major Courses