

CURRICULUM FOR BACHELOR OF ENGINEERING (ROBOTICS)
CN YANG SCHOLARS PROGRAMME
(FIRST YEAR ADMISSION)
AY2025 Intake Onwards

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Major Requirements			Interdisciplinary Collaborative Core			Broadening & Deepening Electives (BDE)	Total AU
	Core (C)	CNYSP-Core (CNYSP-C)	Major Prescribed Electives (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)		
1	20	27	0	0	3	0	0	50
2	28	6	0	10	0	3	4	51
3	13	0	0	0	6	0	2	21
4	8	0	6	0	0	0	0	14
Total	69	33	6	10	9	3	6	136

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY1001	Cell	CNYSP-C	3	
CY1101	Molecule	CNYSP-C	4	
CY1308	Physics	CNYSP-C	3	
CY1500	Introduction to Research	CNYSP-C	2	
CY1601	Mathematics I	CNYSP-C	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-C	3	
CY1602	Mathematics II	CNYSP-C	4	
MA1001	Dynamics	C	3	
MA2001	Mechanics of Materials	C	3	
MA1602^	Robotics Programming Fundamentals	C	3	
MA1603*	Mechatronics System Interfacing & Design	C	3	
MA0218	Introduction to Data Science and Artificial Intelligence	PS	3	
			22	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY0001	Writing Across The Disciplines	CNYSP-C	3	
MA5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
MA2002	Theory of Mechanism	C	3	
MA2005	Engineering Graphics	C	3	
MA2006	Engineering Mathematics	C	3	
MA2601*	Sensing and Sensors	C	3	
EG1001	Engineers in Society	C	2	
CC0015	Health & Wellbeing	CC	2	
SP0061	Science & Technology for Humanity	CC	3	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	AY27 cohort to read in Year 1 Semester 2
	Tech-For-Good (T4G)	CSL	3	Pass/Fail course. Course can be from the pool offered by central CSL office, or can be designed by school.
			27	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY0002	Ethics	CNYSP-C	3	
MA5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
MA2079	Engineering Innovation and Design	C	2	
MA3001	Machine Element Design	C	3	
MA2603*	Mechanics and Modelling of Robot Manipulators	C	3	
MA2604*	Control Theory and Applications	C	3	
MA2602*	Machine Intelligence for Robotics	C	3	
CC0006	Sustainability: Human, Social, Economic & Environment	CC	3	
			24	

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	
MA3604^	Robot Vision	C	3	
MLXXXX	Profession Preparation	PS	1	
			10	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
MA4601*	Robotic Engineering Design	C	4	
	Broadening and Deepening Elective 1	BDE	2	

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

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
MA48XX	MPE1	MPE	3	
MA48XX	MPE2	MPE	3	
			6	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
MA4211	CNYSO Overseas Final Year Project	C	8	Year 4 standing
			8	
Total AUs for Graduation:			136	

YEAR 4 MPE/BDE				
Course Code	Course Title	Type	AU	Remarks
MA4853	Manufacturing Systems	MPE/BDE	3	
MA4861^	Real-time Operating System for Robotics	MPE/BDE	3	
MA4862^	Human-Robot Interaction	MPE/BDE	3	
MA4863^	Robotics Competition	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	

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

^ New courses to be developed.

@ Courses offered by other Schools.