

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

Year of Study	SUMMARY OF ACADEMIC UNIT REQUIREMENT							
	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
<b>Total</b>	<b>69</b>	<b>33</b>	<b>6</b>	<b>10</b>	<b>9</b>	<b>3</b>	<b>6</b>	<b>136</b>

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		
			<b>24</b>		

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		
			<b>22</b>		

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

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.	
			<b>27</b>		

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		
			<b>24</b>		

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		
			<b>10</b>		

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

			6	
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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	CNYSP 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 <sup>^</sup>	Real-time Operating System for Robotics	MPE/BDE	3	
MA4862 <sup>^</sup>	Human-Robot Interaction	MPE/BDE	3	
MA4863 <sup>^</sup>	Robotics Competition	MPE/BDE	3	
EE4285 <sup>@</sup>	Computational Intelligence	MPE/BDE	3	
IE4476 <sup>@</sup>	Image Processing & Computer Vision	MPE/BDE	3	
EE4273 <sup>@</sup>	Digital Control Systems	MPE/BDE	3	
SC4002 <sup>@</sup>	Natural Language Processing	MPE/BDE	3	
SC4020 <sup>@</sup>	Data Analytics & Mining	MPE/BDE	3	
SC4060 <sup>@</sup>	Virtual & Augmented Reality	MPE/BDE	3	

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

<sup>^</sup> New courses to be developed.

<sup>@</sup> Courses offered by other Schools.