

**CURRICULUM FOR BACHELOR OF ENGINEERING (MECHANICAL ENGINEERING - MAINSTREAM)**  
**CN YANG SCHOLARS PROGRAMME**  
**SECOND MAJOR IN DATA ANALYTICS (MEDA)**  
**(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)	CNYS-P-Core (CNYS-P-C)	Major Prescribed Electives (MPE)	Common Core (CC)	Professional Series (PS)	Care, Serve, Learn (CSL)		
1	11 [3]	23	0	2	0	0	0	36 [3]
2	18 [3]	6	0	8	0	3	7	42 [3]
3	25	0	6 [6]	0	9	0	3	43 [6]
4	15	0	0	0	0	0	12	27
<b>Total</b>	<b>69 [6]</b>	<b>29</b>	<b>6 [6]</b>	<b>10</b>	<b>9</b>	<b>3</b>	<b>22</b>	<b>148 [12]</b>

[ ] 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	Remarks
CY1001	Cell	CNYS-P-C	3	
CY1101	Molecule	CNYS-P-C	4	
CY1308	Physics	CNYS-P-C	3	
CY1500	Introduction to Research	CNYS-P-C	2	
CY1601	Mathematics I	CNYS-P-C	4	
EG1001	Engineers in Society	C	2	
CC0015	Health & Wellbeing	CC	2	
			<b>20</b>	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY1007	Climate Change	CNYS-P-C	3	
MA1001	Dynamics	C	3	CY1308 + CY1601
MA1008^	Introduction to Computational Thinking	C	3	
MA2001	Mechanics of Materials	C	3	
			<b>12</b>	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY0001	Writing Across The Disciplines	CNYS-P-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	
MA2003	Intro to Thermo-fluids	C	3	
MA2024	Engineering Materials & Manufacturing Processes	C	3	
MA2006^	Engineering Mathematics	C	3	CY1602 - waiver of pre-requisite required
SP0061	Science & Technology for Humanity	CC	3	
	Tech-For-Good (T4G)	CSL	3	
			<b>21</b>	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY0002	Ethics	CNYS-P-C	3	
MA5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
MA2005	Engineering Graphics	C	3	
MA2071	Laboratory Experiments	C	1	
MA2079	Engineering Innovation and Design	C	2	Semester 2 with 1 week in Special Term
MH1403	Algorithms and Computing	BDE	3	MA1008
CC0006	Sustainability: Society, Economy & Environment	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
			<b>21</b>	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
MA2007	Thermodynamics	C	3	MA2003
MA2009	Introduction to Electrical & Electronic Devices	C	3	
MA3001	Machine Element Design	C	3	Having read MA2001, MA2002 and MA2005
MA3002	Solid Mechanics and Vibration	C	3	MA2001
MA3004	Mathematical Methods in Engineering	C	3	CY1602 - waiver of pre-requisite required
MA3071	Engineering Experiments (ME)	C	1	

MA4849^	Operations Research	MPE	3	
MLXXX	Profession Preparation	PS	1	
			20	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
MA3003	Heat Transfer	C	3	MA2007
MA3005	Control Theory	C	3	Having read MA2006
MA3006	Fluid Mechanics	C	3	
MA0218	Introduction to Data Science and Artificial Intelligence	PS	3	
MA4829^	Machine Intelligence	MPE	3	Second major elective 1
SC2207	Introduction to Database	BDE	3	
			18	

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
MA4001	Engineering Design	C	4	Having read MA3001
MA4002	Fluid Dynamics	C	3	MA3006
	Second major elective 2	BDE	3	
	Second major elective 3	BDE	3	
SC4020	Data Analytics and Mining	BDE	3	MH1403
SC4024	Data Visualization	BDE	3	MA1008, MA4849
			19	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
MA4211	CNYPSP Overseas Final Year Project	C	8	Year 4 standing
			8	
Total AUs for Graduation:			148	

^ These courses are double-counted towards both ME Mainstream 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	MA4849	Operations Research	3	1	-
Core	MA2006	Engineering Mathematics	3	1 & 2	CY1602
Core	MA1008	Introduction to Computational Thinking	3	2	-
BDE	MH1403	Algorithms and Computing	3	2	MA1008
BDE	SC2207	Introduction to Database	3	1 & 2	MH1403
BDE	SC4020	Data Analytics and Mining	3	1	MH1403
BDE	SC4024	Data Visualization	3	1	MA1008 & MA4849

Suggested Electives for Second Major in Data Analytics					
Course Type	Course Code	Course Title	AU	Offering Sem	Pre-req
MPE	MA4829	Machine Intelligence	3	2	-
BDE	MA4830	Real Time Software for Mechatronics System	3	1	-
BDE	MA4832	Microprocessor System	3	1	-