

**AY2024-25 CURRICULUM FOR BACHELOR OF ENGINEERING (MECHANICAL ENGINEERING - MAINSTREAM)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN SUSTAINABILITY (MESN)
(FIRST YEAR ADMISSION)**

Last updated: 31-Jan-24

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYS Core	MPE	CC	FC	BDE	Total AU
1	11	27	0	5	0	0	43
2	18	10	0	8	0	6	42
3	25	0	6	0	8	6	45
4	15	0	0	0	0	13	28
Total	69	37	6	13	8	25	158

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYS 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	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			21	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYS Course
MA1001	Dynamics	C	3	CY1308 + CY1601
MA2003	Intro to Thermo-fluids	C	3	
MA1008	Introduction to Computational Thinking	C	3	
CC0002	Navigating the Digital World	CC	2	
			18	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYS Course
MA2001	Mechanics of Materials	C	3	
MA2002	Theory of Mechanism	C	3	MA1001
MA2006	Engineering Mathematics	C	3	CY1602
MA2009	Introduction to Electrical & Electronic Devices	C	3	
SP0061	Science & Technology for Humanity	CC	3	
	Second Major Compulsory Course 3	BDE	3	
			21	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYS Course
CY2001	Research Attachment 1	CNY-Core	4	CNYS Course 2-semester long, course registered only in Sem 2 (similar to URECA)
MA2005	Engineering Graphics	C	3	

MA2079	Engineering Innovation and Design	C	2	Semester 2 with 1 week in Special Term
MA2071	Laboratory Experiments	C	1	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career and Entrepreneurial Development for the Future	CC	2	
	Second Major Compulsory Course 4	BDE	3	
			21	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA2024	Engineering Materials & Manufacturing Processes	C	3	
MA2007	Thermodynamics	C	3	MA2003
MA3001	Machine Element Design	C	3	Having read MA2001 and MA2002 and MA2005
MA3002	Solid Mechanics and Vibration	C	3	MA2001
MA3004	Mathematical Methods in Engineering	C	3	CY1602
MAXXXX	Major PE #1	MPE	3	
	Second Major Compulsory Course 5	BDE	3	
			21	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3003	Heat Transfer	C	3	MA2007
MA3005	Control Theory	C	3	Having read MA2006
MA3006	Fluid Mechanics	C	3	MA2003
MA3071	Engineering Experiments (ME)	C	1	
MA0218	Introduction to Data Science and Artificial Intelligence	FC	3	MA1008
MAXXXX	Major PE #2	MPE	3	
XXXXXX	SN Elective 1	BDE	3	Please see attached list of electives to choose from
			19	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3910	Professional Attachment	FC	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA4001	Engineering Design	C	4	Having read MA3001
MA4002	Fluid Dynamics	C	3	MA3006
XXXXXX	SN Elective 2	BDE	3	Please see attached list of electives to choose from
XXXXXX	SN Elective 3	BDE	3	
XXXXXX	SN Elective 4	BDE	4	
	Second Major Interdisciplinary Project	BDE	3	
			20	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA4211	CNYSO Overseas Final Year Project	C	8	
			8	
Total AU for Graduation:			158	

^ These courses are double-counted towards both ME as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability
https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00

**AY2024-25 CURRICULUM FOR BACHELOR OF ENGINEERING (MECHANICAL ENGINEERING - DESIGN STREAM)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN SUSTAINABILITY (MESN)
(FIRST YEAR ADMISSION)**

Last updated: 31-Jan-24

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYS- Core	MPE	CC	FC	BDE	Total AU
1	14	27	0	5	0	0	46
2	18	10	0	8	0	6	42
3	25	0	6	0	8	6	45
4	12	0	0	0	0	13	25
Total	69	37	6	13	8	25	158

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYS- 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	Double-counted as Practice Core
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			21	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYS- Course
MA1001	Dynamics	C	3	CY1308 + CY1601
MA2003	Intro to Thermo-fluids	C	3	
MA1008	Introduction to Computational Thinking	C	3	
MA2009	Introduction to Electrical & Electronic Devices	C	3	
CC0002	Navigating the Digital World	CC	2	
			21	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYS- Course
MA2001	Mechanics of Materials	C	3	
MA2002	Theory of Mechanism	C	3	MA1001
MA2006	Engineering Mathematics	C	3	CY1602
MA2014	Product Presentation	C	3	
SP0061	Science & Technology for Humanity	CC	3	
			18	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYS- Course
CY2001	Research Attachment 1	CNY-Core	4	CNYS- Course 2-semester long, course registered only in Sem 2 (similar to URECA)
MA2013	Creative Thinking and Design	C	3	
MA2079	Engineering Innovation and Design	C	2	Semester 2 with 1 week in Special Term
MA2071	Laboratory Experiments	C	1	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career and Entrepreneurial Development for the Future	CC	2	
	Second Major Compulsory Course 3	BDE	3	
			21	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA2005	Engineering Graphics	C	3	
MA2024	Engineering Materials & Manufacturing Processes	C	3	
MA3002	Solid Mechanics and Vibration	C	3	MA2001
MA3004	Mathematical Methods in Engineering	C	3	CY1602
MA3010	Thermodynamics and Heat Transfer	C	3	MA2003
MAXXXX	Major PE #1	MPE	3	
	Second Major Compulsory Course 4	BDE	3	
			21	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3001	Machine Element Design	C	3	Having read MA2001 and MA2002 and MA2005
MA3005	Control Theory	C	3	Having read MA2006
MA3006	Fluid Mechanics	C	3	MA2003
MA3071	Engineering Experiments (ME)	C	1	
MA0218	Introduction to Data Science and Artificial Intelligence	FC	3	MA1008
MAXXXX	Major PE #2	MPE	3	
	Second Major Compulsory Course 5	BDE	3	
	SN Elective 1	BDE	3	Please see attached list of electives to choose from
			22	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3910	Professional Attachment	FC	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA4011	Engineering Product Design	C	4	Having read MA3001
	SN Elective 2	BDE	3	Please see attached list of electives to choose from
	SN Elective 3	BDE	3	
	SN Elective 4	BDE	4	
	Second Major Interdisciplinary Project	BDE	3	
			17	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA4211	CNYSF Overseas Final Year Project	C	8	
			8	
Total AU for Graduation:			158	

^ These courses are double-counted towards both ME as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability
https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Co100

**AY2024-25 CURRICULUM FOR BACHELOR OF ENGINEERING
(MECHANICAL ENGINEERING - ROBOTICS & MECHATRONICS STREAM)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN SUSTAINABILITY (MESN)
(FIRST YEAR ADMISSION)**

Last updated: 31-Jan-24

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	14	27	0	5	0	0	46
2	18	10	0	8	0	3	39
3	29	0	6	0	8	3	46
4	8	0	0	0	0	19	27
Total	69	37	6	13	8	25	158

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1001	Cell	CNY-Core	3	CNYSP 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	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3	
			21	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY1007^	Climate Change	CNY-Core	3	Double-counted as Planet Core
CY1602	Mathematics II	CNY-Core	4	CNYSP Course
MA1001	Dynamics	C	3	CY1308 + CY1601
MA2003	Intro to Thermo-fluids	C	3	
MA1008	Introduction to Computational Thinking	C	3	
MA2009	Introduction to Electrical & Electronic Devices	C	3	
CC0002	Navigating the Digital World	CC	2	
			21	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSP Course
MA2001	Mechanics of Materials	C	3	
MA2002	Theory of Mechanism	C	3	MA1001
MA2006	Engineering Mathematics	C	3	CY1602
MA2012	Introduction to Mechatronics Systems Design	C	3	
SP0061	Science & Technology for Humanity	CC	3	
			18	

YEAR 2 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
CY0002	Ethics	CNY-Core	3	CNYSP Course
CY2001	Research Attachment 1	CNY-Core	4	CNYSP Course 2-semester long, course registered only in Sem 2 (similar to URECA)
MA2011	Mechatronics System Interfacing	C	3	
MA2079	Engineering Innovation and Design	C	2	Semester 2 with 1 week in Special Term
MA2071	Laboratory Experiments	C	1	
CC0006	Sustainability: Society, Economy & Environment	CC	3	
ML0004	Career and Entrepreneurial Development for the Future World	CC	2	
	Second Major Compulsory Course 3	BDE	3	
			21	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA2005	Engineering Graphics	C	3	
MA2024	Engineering Materials & Manufacturing Processes	C	3	
MA3002	Solid Mechanics and Vibration	C	3	MA2001
MA3004	Mathematical Methods in Engineering	C	3	CY1602

MA3005	Control Theory	C	3	Having read MA2006
MA3010	Thermodynamics and Heat Transfer	C	3	MA2003
MAXXXX	Major PE #1	MPE	3	
			21	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3001	Machine Element Design	C	3	Having read MA2001 and MA2002 and MA2005
MA3006	Fluid Mechanics	C	3	MA2003
MA3071	Engineering Experiments (ME)	C	1	
MA0218	Introduction to Data Science and Artificial Intelligence	FC	3	MA1008
MA4012	Mechatronics Engineering Design	C	4	Having read MA3001
MAXXXX	Major PE #2	MPE	3	
	Second Major Compulsory Course 4	BDE	3	
			20	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3910	Professional Attachment	FC	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
	Second Major Compulsory Course 5	BDE	3	
XXXXXX	SN Elective 1	BDE	3	Please see attached list of electives to choose from
XXXXXX	SN Elective 2	BDE	3	
XXXXXX	SN Elective 3	BDE	3	
XXXXXX	SN Elective 4	BDE	4	
	Second Major Interdisciplinary Project	BDE	3	
			19	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA4211	CNYSF Overseas Final Year Project	C	8	
			8	
Total AU for Graduation:			158	

^ These courses are double-counted towards both ME as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability
https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00

**AY2024-25 CURRICULUM FOR BACHELOR OF ENGINEERING
(MECHANICAL ENGINEERING - INTELLIGENCE MANUFACTURING STREAM)
WITH CN YANG SCHOLARS PROGRAMME
SECOND MAJOR IN SUSTAINABILITY (MESN)
(FIRST YEAR ADMISSION)**

Last updated: 31-Jan-24

SUMMARY OF ACADEMIC UNIT REQUIREMENT							
Year of Study	School Core	CNYSP-Core	MPE	CC	FC	BDE	Total AU
1	14	27	0	5	0	0	46
2	18	10	0	8	0	3	39
3	29	0	6	0	8	3	46
4	8	0	0	0	0	19	27
Total	69	37	6	13	8	25	158

YEAR 1 SEMESTER 1					
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks	
CY1001	Cell	CNY-Core	3	CNYSP 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	Double-counted as Practice Core	
CC0005	Healthy Living & Mental Wellbeing in an Aging Society	CC	3		
			21		

YEAR 1 SEMESTER 2					
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks	
CY1007^	Climate Change	CNY-Core	3	Double-counted as Planet Core	
CY1602	Mathematics II	CNY-Core	4	CNYSP Course	
MA1001	Dynamics	C	3	CY1308 + CY1601	
MA2003	Intro to Thermo-fluids	C	3		
MA1008	Introduction to Computational Thinking	C	3		
MA2009	Introduction to Electrical & Electronic Devices	C	3		
CC0002	Navigating the Digital World	CC	2		
			21		

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

YEAR 2 SEMESTER 1					
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks	
CY0001	Writing Across the Disciplines	CNY-Core	3	CNYSP Course	
MA2001	Mechanics of Materials	C	3		
MA2002	Theory of Mechanism	C	3	MA1001	
MA2006	Engineering Mathematics	C	3	CY1602	
MA2012	Introduction to Mechatronics Systems Design	C	3		
SP0061	Science & Technology for Humanity	CC	3		
			18		

YEAR 2 SEMESTER 2					
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks	
CY0002	Ethics	CNY-Core	3	CNYSP Course	
CY2001	Research Attachment 1	CNY-Core	4	CNYSP Course 2-semester long, course registered only in Sem 2 (similar to URECA)	
MA2011	Mechatronics System Interfacing	C	3		
MA2079	Engineering Innovation and Design	C	2	Semester 2 with 1 week in Special Term	
MA2071	Laboratory Experiments	C	1		
CC0006	Sustainability: Society, Economy & Environment	CC	3		
ML0004	Career and Entrepreneurial Development for the Future	CC	2		
	Second Major Compulsory Course 3	BDE	3		
			21		

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA2005	Engineering Graphics	C	3	
MA2024	Engineering Materials & Manufacturing Processes	C	3	
MA3002	Solid Mechanics and Vibration	C	3	MA2001
MA3004	Mathematical Methods in Engineering	C	3	CY1602
MA3005	Control Theory	C	3	Having read MA2006
MA3010	Thermodynamics and Heat Transfer	C	3	MA2003
MAXXX	Major PE #1	MPE	3	
			21	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3001	Machine Element Design	C	3	Having read MA2001 and MA2002 and MA2005
MA3006	Fluid Mechanics	C	3	MA2003
MA3071	Engineering Experiments (ME)	C	1	
MA0218	Introduction to Data Science and Artificial Intelligence	FC	3	MA1008
MA4013	Manufacturing Engineering Design	C	4	Having read MA3001
MAXXX	Major PE #2	MPE	3	
	Second Major Compulsory Course 4	BDE	3	
			20	

YEAR 3 SPECIAL SEMESTER				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA3910	Professional Attachment	FC	5	
			5	

YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
	Second Major Compulsory Course 5	BDE	3	
	SN Elective 1	BDE	3	
	SN Elective 2	BDE	3	Please see attached list of electives to choose from
	SN Elective 3	BDE	3	
	SN Elective 4	BDE	4	
	Second Major Interdisciplinary Project	BDE	3	
			19	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Pre-Requisite/Remarks
MA4211	CNYSO Overseas Final Year Project	C	8	
			8	

Total AU for Graduation: **158**

These courses are double-counted towards both ME as well as the Second Major in Sustainability.

Compulsory Courses and Electives for Second Major in Sustainability
https://www.ntu.edu.sg/ase/admissions/undergraduate-programmes/second-major-in-sustainability#Content_C002_Col00