

**CURRICULUM FOR BACHELOR OF SCIENCE (APPLIED PHYSICS)
WITH SECOND MAJOR IN MICROELECTRONICS ENGINEERING
CN YANG SCHOLARS PROGRAMME
(FIRST YEAR ADMISSION)
AY2026 Intake Onwards**

SUMMARY OF ACADEMIC UNIT REQUIREMENT								
Year of Study	Core	CNYS- Core	MPE	CC	Professional Series	Care, Serve & Learn	BDE	Total AU
1	13	27	0	3	3	0	3	49
2	18	6	0	7	0	3	10	44
3	9 [3]	0	3 [3]	0	1	0	25	38 [6]
4	12	0	0	0	10	0	0	22
Total	52 [3]	33	3 [3]	10	14	3	38	153 [6]

[] AU of courses that could be used to fulfil Core requirement and second major requirement concurrently

YEAR 1 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY1001	The Systems Architecture of Life	CNYS- Core	3	
CY1101	Molecule	CNYS- Core	4	
CY1308	Physics	CNYS- Core	3	
CY1601	Mathematics I	CNYS- Core	4	
PH1105	Optics, Vibrations and Waves	C	3	
PH1198	Physics Lab IA	C	2	
PS0001	Introduction to Computational Thinking	C	3	
			22	

YEAR 1 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
CY1007	Climate Change	CNYS- Core	3	
CY1500	Introduction to Research	CNYS- Core	2	
CY1602	Mathematics II	CNYS- Core	4	
PH1107	Relativity and Quantum Physics	C	3	
PH1199	Physics Lab IB	C	2	
PS0002	Introduction to Data Science and Artificial Intelligence	PS	3	
NH0007	Critical Perspectives on Technology and Society	CC	3	
	Broadening and Deepening Elective 1	BDE	3	
			23	

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

YEAR 2 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
CY0001	Language & Logic	CNYS- Core	3	
PS5915	Undergraduate Research	BDE	IP	Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2
PH2102	Electromagnetism	C	4	CY1601 & CY1602 & CY1308
PH2103	Thermal Physics	C	4	CY1602 & CY1308
PH2198	Physics Lab IIA	C	2	PH1198
NH0001	Tech-For-Good Service Learning	CSL	3	
CC0015	Health & Wellbeing	CC	2	
ML0004	Career Design & Workplace Readiness in the V.U.C.A World	CC	2	
EE2101	Circuit Analysis	BDE	3	Required second major course
			23	

YEAR 2 SEMESTER 2				
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Course Code	Course Title	Type	AU	Remarks
CY0002	Ethics	CNYS-Core	3	
PS5915	Undergraduate Research	BDE	4	2-semester long, course registered only in Sem 2
PH2101	Quantum Mechanics 1	C	3	CY1601 & CY1602 & PH1107
PH2199	Physics Lab IIB	C	2	PH1199
PH2301	Physical Optics	C	3	PH1105
CC0006	Sustainability: Society, Economy & Environment	CC	3	
IE2104	Digital Electronics	BDE	3	Required course for second major
			21	

YEAR 3 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
PH3199	Physics Lab IIIa	C	2	
PH3101	Quantum Mechanics II	C	4	MH2801 & PH2101
PH3103^	Technological Applications of Quantum Mechanics	C	3	PH2101 Required second major course
PH3601^	Fabrication of Micro- and Nanoelectronic Devices	MPE	3	PH2102 Required second major course
IE3102	Microprocessors	BDE	3	Required second major course
EEXXXX	ME Elective 1	BDE	2	Elective list
MLXXXX	Profession Preparation	PS	1	
			18	

YEAR 3 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
XXXXXX	Broadening and Deepening Elective	BDE	4	
PH7013	Advanced Numerical Methods for Physicists	BDE	4	CY1602 & PS0001 Required second major course
PH4601	Physics of Semiconductor & Spintronic Devices	BDE	4	PH3102 Required second major course
EE2102	Analog Electronics	BDE	3	EE2101 Required second major course
EE3019	Integrated Electronics	BDE	3	EE2002 Required second major course
EEXXXX	ME Elective 2	BDE	2	Elective List
			20	

YEAR 3 SPECIAL SEMESTER & YEAR 4 SEMESTER 1				
Course Code	Course Title	Type	AU	Remarks
PH4111	Overseas Final Year Project	C	12	
			12	

YEAR 4 SEMESTER 2				
Course Code	Course Title	Type	AU	Remarks
PH4420	Professional Internship	PS	10	
			10	
Total AUs required for Graduation:			153	

^ These courses are double-counted towards both PHY as well as the Second Major in Microelectronics Engineering