

**CURRICULUM FOR BACHELOR OF SCIENCE (APPLIED PHYSICS)
WITH SECOND MAJOR IN MICROELECTRONICS ENGINEERING
CN YANG SCHOLARS PROGRAMME
(FIRST YEAR ADMISSION)
AY2025 Intake Onwards**

| SUMMARY OF ACADEMIC UNIT REQUIREMENT | | | | | | | | |
|--------------------------------------|-----------|---------------|----------|-----------|------------------------|------------------------|-----------|------------|
| Year of Study | Core | CNYS- Core | MPE | CC | Professional Series | Care, Serve & Learn | BDE | Total AU |
| 1 | 10 | 27 | 0 | 2 | 3 | 0 | 6 | 48 |
| 2 | 17 | 6 | 0 | 8 | 0 | 3 | 7 | 41 |
| 3 | 13 | 0 | 3 | 0 | 1 | 0 | 25 | 42 |
| 4 | 12 | 0 | 0 | 0 | 10 | 0 | 0 | 22 |
| Total | 52 | 33 | 3 | 10 | 14 | 3 | 38 | 153 |

| YEAR 1 SEMESTER 1 | | | | |
|-------------------|----------------------------------------|-----------|-----------|---------|
| Course Code | Course Title | Type | AU | Remarks |
| CY1001 | Cell | CNYS-Core | 3 | |
| CY1101 | Molecule | CNYS-Core | 4 | |
| CY1308 | Physics | CNYS-Core | 3 | |
| CY1500 | Introduction to Research | CNYS-Core | 2 | |
| CY1601 | Mathematics I | CNYS-Core | 4 | |
| PH1198 | Physics Lab IA | C | 2 | |
| PS0001 | Introduction to Computational Thinking | C | 3 | |
| CC0015 | Health & Wellbeing | CC | 2 | |
| | | | 23 | |

| YEAR 1 SEMESTER 2 | | | | |
|-------------------|----------------------------------------------------------|-----------|-----------|----------------------------------|
| Course Code | Course Title | Type | AU | Remarks |
| CY1007 | Climate Change | CNYS-Core | 3 | |
| 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 | |
| IE2104 | Digital Electronics | BDE | 3 | Required course for second major |
| | Broadening and Deepening Elective 1 | BDE | 3 | |
| | | | 21 | |

| 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 | Writing Across The Disciplines | CNYS-Core | 3 | |
| PH5915 | Undergraduate Research | BDE | IP | Course will be registered in Semester 2. Grades will be recorded at the end of Semester 2 |
| PH1105 | Optics, Vibrations and Waves | C | 3 | |
| PH2103 | Thermal Physics | C | 4 | CY1602 & CY1308 |
| PH2198 | Physics Lab IIA | C | 2 | PH1198 |
| | Tech-For-Good | CSL | 3 | |
| CC0006 | Sustainability: Society, Economy & Environment | CC | 3 | |
| 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 | | | | |
|-------------------|-----------------------------------|--------------|-----------|--------------------------------------------------|
| Course Code | Course Title | Type | AU | Remarks |
| CY0002 | Ethics | CNYS-SP-Core | 3 | |
| PH5915 | 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 |
| SP0061 | Science & Technology for Humanity | CC | 3 | |
| | | | 18 | |

| YEAR 3 SEMESTER 1 | | | | |
|-------------------|--------------------------------------------------|------|-----------|----------------------------------------|
| Course Code | Course Title | Type | AU | Remarks |
| PH2102 | Electromagnetism | C | 4 | CY1601 & CY1602 & CY1308 |
| PH3199 | Physics Lab IIIa | C | 2 | |
| PH3101 | Quantum Mechanics II | C | 4 | MH2801 & PH2101 |
| PH3103 | Technological Applications of Quantum Mechanics | C | 3 | PH2101 |
| PH3601 | Fabrication of Micro- and Nanoelectronic Devices | BDE | 4 | PH2102 Required second major course |
| EE2102 | Analog Electronics | BDE | 3 | EE2101 Required second major course |
| EEXXXX | ME Elective 1 | BDE | 2 | Elective list |
| MLXXXX | Profession Preparation | PS | 1 | |
| | | | 23 | |

| YEAR 3 SEMESTER 2 | | | | |
|-------------------|-----------------------------------------------|------|-----------|-------------------------------------------------|
| Course Code | Course Title | Type | AU | Remarks |
| PHXXXX | PH Major Prescribed Elective 1 | MPE | 3 | |
| 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 |
| EE3019 | Integrated Electronics | BDE | 3 | EE2002 Required second major course |
| EEXXXX | ME Elective 2 | BDE | 2 | Elective List |
| IE3102 | Microprocessors | BDE | 3 | Required second major course |
| | | | 19 | |

| 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 | |