|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \*\* Offered in Both Semesters | | | Unit shared between both majors | BSc component of combined degree (minimum 12 units) |
| *Year 1*  *Semester 1*  *2022* | BE Unit | BE Unit | **MATH1011\*\***  Multivariable Calculus  ***Prereq: Math Specialist ATAR or MATH1722*** | **PHYS1001**\*\*  Physics for Scientists and Engineers  ***Prereq: (Physics ATAR or PHYS1030) & (Math Methods ATAR or MATH1721);***  ***Co-req: MATH1722*** |
| *Year 1*  *Semester 2*  *2022* | BE Unit | BE Unit | **MATH1012\*\***  Mathematical Theory & Methods  ***Prereq: Math Specialist ATAR or MATH1722*** | **# PHYS1002**\*\* **(see note 2b)**  Modern Physics  ***Prereq: PHYS1001*** |
| *Year 2*  *Semester 1*  *2023* | BE Unit | BE Unit | **MATH2501 (see note 2a)**  Advanced Mathematical Methods  ***Prereq: MATH1011 Coreq: MATH1012*** | **# PHYS2001 (see note 2b)** Quantum Physics & Electromagnetism  ***Prereq: PHYS1001, PHYS1002 & MATH1011*** |
| *Year 2*  *Semester 2*  *2023* | BE Unit | BE Unit | BE Unit | **# PHYS2002 (see note 2b)**  Many Particle Systems  ***Prereq: PHYS1001, PHYS1002 & (MATH1011 or***  ***MATH1012)*** |
| *Year 3*  *Semester 1*  *2024* | BE Unit | BE Unit | BE Unit | **CITS1401\*\* (see note 1)** Computational Thinking with Python OR BSc Elective |
| *Year 3*  *Semester 2*  *2024* | BE Unit | BE Unit | BE Unit | **PHYS3002**  Electrodynamics & Relativity  ***Prereq: PHYS2001, PHYS2002 & (MATH2501 or***  ***MATH3023)*** |
| *Year 4*  *Semester 1*  *2025* | BE Unit | BE Unit | BE Unit | **PHYS3001**  Quantum Mechanics & Atomic Physics  ***Prereq: PHYS2001 & (MATH2501 or MATH3023)*** |
| *Year 4*  *Semester 2*  *2025* | BE Unit | BE Unit | BE Unit | **PHYSICS Option #** |
| *Year 5*  *Semester 1*  *2026* | BE Unit | BE Unit | BE Unit (MJD-EAUTO) OR  FREE ELECTIVE (in place of PHYS1001) | **PHYSICS Option #** |
| *Year 5*  *Semester 2*  *2026* | BE Unit | BE Unit | FREE ELECTIVE  (in place of MATH1011) | FREE ELECTIVE  (in place of MATH1012) |

Additionally, students must complete GENG1000, GENG2000 & GENG3000 Engineering Practice Skills (0 pts = 3 x 1week modules) and GENG5010 Professional Eng. Portfolio (0 pts)

**# Physics Major Option Units: Take units to the value of 12 points from this group:**

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| --- | --- | --- | --- |
| PHYS3003 (S1)  Astrophysics & Space Science  ***Prereq: PHYS2001 & PHYS2002 & (MATH2501 or***  ***MATH3023)*** | PHYS3005 (S1)  Quantum Computation  ***Prereq: PHYS2001 & PHYS3001*** | PHYS3011 (S2)  Mathematical Physics  ***Prereq: PHYS2001 & (MATH2501 or MATH3023)***  ***Coreq: PHYS2001*** | PHYS3012 (S2)  Topics in Contemporary Physics  ***Prereq: PHYS2001 & PHYS2002 & (MATH2501 or***  ***MATH3023)*** |

**Cross-credit arrangements**

* **BE(Hons) ALL Majors and BSc Physics Major: MATH1011 and MATH1012** count towards both the BE and BSc component: students must take MATH1011 and MATH1012 and two additional electives or other units required by their course of study.
* **BE(Hons), ALL majors EXCEPT for Automation and Robotics Engineering, and BSc Physics Major: PHYS1001** counts towards both the BE and BSc component: students in this course must take PHYS1001 and one additional elective or other unit required by their course of study. The exception to this is the BE Automation and Robotics Engineering major: students do not take PHYS1001 in this major, and so PHYS1001 must be taken to fulfil requirements in the BSc component.

**Special Note 1**

**BE(Hons), ALL majors EXCEPT Automation and Robotics Engineering, and BSc Physics Major:**

Students in this course who undertake CITS2401 in satisfaction of the requirements of the Bachelor of Engineering (Honours) degree are not required to complete the unit CITS1401 to fulfill the requirements of the Physics major in the Bachelor of Science. In this case, students can replace CITS1401 with an elective unit or another unit required by their course of study.

**Special Note 2**

**BE(Hons) Electrical and Electronic Engineering Major and BSc Physics Major:**

1. Students in this course who undertake MATH2501 in satisfaction of the requirements of the Physics major in the Bachelor of Science degree are not required to complete the unit MATH3023 to fulfill the requirements of the Bachelor of Engineering (Honours). In this case, students can replace MATH3023 with an elective unit or another unit required by their course of study.
2. Students in this course who undertake PHYS1002, PHYS2001 & PHYS2002 in satisfaction of the requirements of the Physics major in the Bachelor of Science degree are not required to complete the unit PHYS2003 to fulfill the requirements of the Bachelor of Engineering (Honours). In this case, students can replace PHYS2003 with an elective unit or another unit required by their course of study.

**Further Help**

If you need to discuss your study plan further, please contact the [EMS Student Office](https://www.uwa.edu.au/students/my-course/study-areas/ems-students)