

MASTER CURRICULUM – APPLIED PHYSICS – 2024/2025

| Compulsory course AP | | | | |
|------------------------|--|----|-----|----------|
| Code | Course | EC | Q | Timeslot |
| 3MA010 | Computational and mathematical physics | 5 | GS1 | B |

| Compulsory Courses Master Tracks AP | | | | | |
|-------------------------------------|-----------------------------------|----|-------|-----|----------|
| Code | Course | EC | Track | Q | Timeslot |
| 3MB010 | Physics of plasma and radiation | 5 | PB | GS1 | A |
| 3MQ010 | Condensed matter at the nanoscale | 5 | NQP | GS1 | C |
| 3MS010 | Advanced fluid dynamics | 5 | FBSM | GS1 | E |
| 3MS020 | Soft matter physics | 5 | FBSM | GS2 | B |

| Internship & Graduation AP | | | |
|----------------------------|--|------|----------|
| Code | Course | EC | Timeslot |
| 3MA15 | External internship Applied Physics | 15 | X |
| 3MA30 | External internship Applied Physics | 30 | X |
| 3MA45 | Graduation project Applied Physics | 45 | X |
| 3MA60 | Graduation project Applied Physics | 60 | X |
| 3APIDD225 | Combined graduation project - Applied Physics Part | 22,5 | X |
| 3APIDD30 | Combined graduation project - Applied Physics Part | 30 | X |

| General Elective AP | | | | |
|------------------------|---------------------------------|-----|----------|----------|
| Code | Course | EC | Q | Timeslot |
| 3ME120 | Physics of engineering problems | 5 | GS2 | A |
| 3MC010 | Career development | 2,5 | GS2, GS4 | D1, C2 |

| FBSM Track Electives - Fluids, Bio & Soft Matter | | | | |
|--|---|----|---------|----------|
| Code | Course | EC | Q | Timeslot |
| 3MT150 | Environmental fluid mechanics | 5 | GS1 | C |
| 3MQ110 | Advanced materials modelling using multiscale methods | 10 | GS2+GS3 | A |
| 3MT160 | Introduction to NMR/MRI for imaging and flow visualization | 5 | GS2 | C |
| 3MN150 | Nanomagnetism | 5 | GS2 | D |
| 3MN170 | Molecular biosensing | 5 | GS2 | E |
| 3MQ100 | Photonics and modern optics | 5 | GS2 | C |
| 3MT140 | Experimental methods in transport and soft matter physics | 5 | GS1 | A |
| 3MN100 | Polymer physics | 5 | GS3 | B |
| 3MT100 | Chaos | 5 | GS3 | D |
| 3MT120 | Advanced computational fluid and plasma dynamics | 5 | GS3 | E |
| 3MN110 | Landau theory & the statics and dynamics of phase transitions | 5 | GS4 | A |
| 3MT110 | Geophysical fluid dynamics | 5 | GS4 | B |
| 3MN210 | Advanced Optical Microscopy | 5 | GS4 | C |
| 3MT170 | Machine learning for fluid dynamics | 5 | GS1 | D |
| 3MT130 | Transport in porous media | 5 | GS4 | E |
| 4EM10 | Gasdynamics | 5 | GS2 | B2 |
| BETA-MTOYM | Toy Models in Science and Technology 4 | 5 | * | * |

*This course will start at the University of Utrecht, so Quarter and Timeslot are mentioned in Utrecht's OSIRIS website.

MASTER CURRICULUM – APPLIED PHYSICS – 2024/2025

| PB Track Electives - Plasmas & Beams | | | | |
|--------------------------------------|--|----|-------------|----------|
| Code | Course | EC | Q | Timeslot |
| 3MF100 | Fusion on the back of an envelope | 5 | GS1 | E |
| 3MQ110 | Adv. materials modelling using multiscale methods | 10 | GS2+ GS3 | A |
| 3MF110 | Magnetic confinement and MHD of fusion plasmas | 5 | GS2 | C |
| 3MA020 | Advanced electrodynamics | 5 | GS2 | B |
| 3MP100 | Gas discharges | 5 | GS2 | E |
| 3MQ100 | Photonics and modern optics | 5 | GS2 | C |
| 3MQ010 | Condensed matter at the nanoscale | 5 | GS1 | C |
| 3MP170 | Plasma processing science and technology | 5 | GS3 | B |
| 3MP140 | Accelerators and beams | 5 | GS3 | C |
| 3MF130 | Heating and diagnosing fusion plasmas | 5 | GS3 | B |
| 3MP110 | Solar cells | 5 | GS3 | D |
| 3MP180 | Optical diagnostics: techniques and applications | 5 | GS4 | A |
| 3MP150 | Ultracold quantum physics | 5 | GS3 | E |
| 3MF120 | Fusion reactor materials and plasma-wall interaction | 5 | GS4 | E |

| NQP Track Electives - Nano, Quantum & Photonics | | | | |
|---|---|----|---------|----------|
| Code | Course | EC | Q | Timeslot |
| 3MN190 | Semiconductor nanophysics | 5 | GS1 | E |
| 3MQ110 | Adv. materials modelling using multiscale methods | 10 | GS2+GS3 | A |
| 3MN150 | Nanomagnetism | 5 | GS2 | D |
| 3MQ100 | Photonics and modern optics | 5 | GS2 | C |
| 3MN120 | Organic electronics | 5 | GS3 | B |
| 3MP170 | Plasma processing science and technology | 5 | GS3 | B |
| 3MN180 | Nanophotonics | 5 | GS3 | C |
| 3MP110 | Solar cells | 5 | GS3 | D |
| 3MP150 | Ultracold quantum physics | 5 | GS3 | E |
| 3MN210 | Advanced Optical Microscopy | 5 | GS4 | C |
| 3MN220 | Nanospintronics | 5 | GS4 | E |
| 3MQ120 | Hybrid quantum computing | 5 | GS2 | E |
| 5LTD0 | Introduction to quantum sensing | 5 | GS2 | E |
| 5LTE0 | Quantum communications | 5 | GS3 | E |
| 5LH00 | Optical sensing and metrology | 5 | GS3 | E |
| 6EMA53 | Molecular photophysics | 5 | GS1 | D |