MSc Applied Physics - TU Delft
Master's Courses for Exchange Students

The course package proposals indicated here are composed considering the coherence of their contents. Overlap between lectures and exams of the courses within the same package is not likely but may occur due to unforeseen circumstances leading to schedule modifications. The course package proposals are intended for MSc students and students in the process of finalizing their BSc programme.

Please read the courses' pre-requisites here to determine whether the courses you select are a good fit for your educational background.

Fall semester 2024

Course Proposals Master Applied Physics 2024-2025						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3991	Research Project (BSc/MSc level) * Can be combined with 0-15 EC course work	15-30 EC	■	■	■	■
Minor Quantum Science and Quantum Information (BSc level) **						
TN-MI-219	For more information, please see the following link	30 EC	■	■		
Taste All Departments						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3122	Advanced Optical Imaging	6 EC	■	■		
AP3261	Mesoscopic Physics	6 EC	■	■		
AP3352	Introduction to Nuclear Science and Engineering	6 EC	■	■		
AP3511	Biophysics	6 EC	■	■		
ME45042	Advanced Fluid Dynamics	5 EC	■	■		
1st semester Physics for Energy MSc Track						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3001	Mathematical Methods for Physics	9 EC	■	■		
AP3032	Continuum Physics	6 EC	■	■		
AP3071	Advanced Electrodynamics	6 EC	■	■		
AP3333	Physics of Energy Materials	6 EC	■	■		
ME45001	Advanced Heat Transfer	4 EC	■			
1st semester Physics for Fluids Engineering MSc track						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3001	Mathematical Methods for Physics	9 EC	■	■		
AP3021	Advanced Statistical Mechanics	6 EC	■	■		
AP3032	Continuum Physics	6 EC	■	■		
ME45043	Advanced Fluid Dynamics for AP	6 EC	■	■		
WM0320TU	Ethics and Engineering	3 EC	■			
1st semester Physics for Health and Life MSc track						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3001	Mathematical Methods for Physics	9 EC	■	■		
AP3071	Advanced Electrodynamics	6 EC	■	■		
AP3232	Medical Imaging Signals and Systems	6 EC	■	■		
AP3511	Biophysics	6 EC	■	■		
WM0320TU	Ethics and Engineering	3 EC	■			

1st semester Physics for Instrumentation MSc track						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3001	Mathematical Methods for Physics	9 EC	■	■		
AP3032	Continuum Physics	6 EC	■	■		
AP3071	Advanced Electrodynamics	6 EC	■	■		
AP3122	Advanced Optical Imaging	6 EC	■	■		
WM0320TU	Ethics and Engineering	3 EC	■			
1st semester Physics for Quantum Devices and Quantum Computing MSc track						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3001	Mathematical Methods for Physics	9 EC	■	■		
AP3021	Advanced Statistical Mechanics	6 EC	■	■		
AP3261	Mesoscopic Physics	6 EC	■	■		
AP3303	Applications of Quantum Mechanics	3 EC	■			
QIST4310	Fundamentals of Quantum Information	4 EC		■		
WM0320TU	Ethics and Engineering	3 EC	■			

* A **Research Project** (of at least 15 EC) at one of our groups within the Faculty of Applied Sciences. It is possible to combine the Research Project with courses. The larger the project, the more chance to be accepted by the department. The course code of the Research project is AP3991. A Research Project of 24 EC can be finalized before Christmas. Please do notice that an early termination of a TU Delft housing rental contract is not possible.

** The **Minor Quantum Science and Quantum Information** can also be finalized before Christmas. Without taking part in the group project, a maximum of 24 EC can be obtained. Please do notice that an early termination of a TU Delft housing rental contract is not possible.

The **study guide of the MSc Applied Physics** can be found via this link. Please note that the course offerings and time schedules may be subject to modifications.

The following **BSc courses Applied Physics** are taught in English and open for exchange students: Introduction to Biophysics (TN1651) and Systems and Signals (TN2545). For more information, please see the study guide for the BSc Applied Physics, which can be found here.

We do not recommend mixing courses from various programmes and/or faculties since this will likely lead to scheduling conflicts and overlap. Such scheduling conflicts are the responsibility of the student.

Students that intend to do a **research project** are strongly encouraged to take a proactive role in finding a supervisor and research project within the Applied Physics department. The first step is to find a scientific contact person within the Faculty of Applied Sciences (maybe someone you have already been in contact with or are planning to collaborate with) and get direct approval from the professor of the group where you wish to do your research. In most cases you will work under the supervision of a PhD student and his/her professor. Before applying to any of our two annual exchange periods, ideally you will already have arranged a project yourself or you are in the process of doing so. Please mention the actions you have taken in your application as well. In special cases, we may assist you in finding a supervisor for the research project after the application deadline, but as mentioned earlier, we expect you to take the lead.

More information about the departments of the Faculty of Applied Sciences can be found on this webpage.

When contacting our academic staff for the first time, we recommend including the following information in your e-mail:

- Why you have chosen TU Delft and the respective department
- That you are an exchange student from a TU Delft partner university, registered through the International Office Applied Sciences

- The research area/topic you are interested in and why
- A resume covering your experiences and personal details
- A transcript of records

Spring Semester 2025

Please note that the following course proposals are based on the academic year 2023-2024. More information on the availability of courses in the Spring semester of 2025 will follow later in summer 2024.

Course Proposals Master Applied Physics 2023-2024						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3991	Research Project (BSc/MSc level) * Can be combined with 0-15 EC course work	15-30 EC	■	■	■	■
2nd semester Physics for Energy						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3141	Environmental Physics	6 EC			■	■
AP3211	Advanced Solid State Physics	6 EC			■	■
AP3341	Nuclear Reactor Physics	6 EC			■	■
CH3222	Energy Storage in Batteries	4 EC			■	
CH3632	Chemistry and Physics of Solar Cells	6 EC			■	
SET3085	Hydrogen Technology	4 EC				■
2nd semester Physics for Fluids Engineering						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3082	Computational Physics	6 EC			■	■
AP3171	Advanced Physical Transport Phenomena	6 EC			■	
AP3181	Applied Multiphase Flow	6 EC			■	■
AP3551	Computational Multiphase Flow	6 EC			■	■
AP3563	Water in the Atmosphere	5 EC				■
2nd semester Physics for Health and Life						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3132	Advanced Digital Image Processing	6 EC			■	■
AP3162	Physics of Biological Systems: Mathematical modelling in Systems Biology	6 EC			■	■
CH3763	Nuclear Medicine	3 EC			■	
NB4160	Engineering of Living Systems	3 EC				■
AP3531	Acoustical Imaging	6 EC			■	■
AP3582	Medical Physics of Photon and Proton Therapy	6 EC			■	■
2nd semester Physics for Instrumentation						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3091	Elementary Particles	6 EC			■	■
AP3152	Optics for Lithography	6 EC			■	■
AP3382	Advanced Photonics	6 EC			■	■
AP3401	Introduction to Charged Particle Optics	6 EC			■	■
AP3701	Submm and Terahertz Physics and Applications	3 EC			■	
EE4745	Superconducting Astronomical Instrumentation	5 EC				■

2nd semester Physics for Quantum Devices and Quantum Computing						
Identifier	**Course name**	**Credits**	**Period**			
			1	2	3	4
AP3113	Quantum Optics	6 EC			■	■
AP3211	Advanced Solid State Physics	6 EC			■	■
AP3222	Nanotechnology	6 EC			■	■
AP3432	Quantum Hardware 1 - Theoretical Concepts	4 EC			■	
AP3442	Quantum Hardware 2 - Experimental State of the Art	4 EC				■
AP3663	Special Topics in Quantum Technology	4 EC				■

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