Applied Physics
Master's programme 2026-2027

UNIVERSITY OF TWENTE.

In this Applied Physics master's programme the courses and planning of the courses in the Applied Physics of the academic year 2026-2027 programme are listed.
Among other things the curricula per cohort and the transitional arrangements are published on the website **Curriculum master AP** Here you will also find the specialization courses and recommended elective courses for each track.

Compulsory courses

Quartile	Course Code	Course Name	Contact	EC
1A	202200093	Quantum Mechanics 2	Klärs	5.0
1B	201900080	Mathematical and Numerical Physics	Stevens	5.0
2A	191470241	Heat and Mass Transfer	Maass	5.0
2B	201900282	Small Signals and Detection	Marpaung	4.0
2B	201900281	Ethical and Cultural Awareness	Offerhaus	1.0
-	193599010 or 201700185	Internship Internship	Velthuis Velthuis	20 30
-	201800344	Master's Assignment, Physical Aspects	AP programme	20
		Master's Assignment, General Aspects	AP programme	20

Specialisation courses Applied Physics

Information about the Applied Physics specialisations can also be found on the website
https://www.utwente.nl/en/education/master/programmes/applied-physics/specialisations/

Capita Selecta (CS) course
A Capita Selecta course offers students the opportunity to explore a fundamental or current topic in physics in case the subjects are not covered by a regular course at the same level. The emphasis is on theoretical depth; the application of physics or engineering skills is not part of the course.
The content, learning objectives, and assessment are developed in consultation with a research group chair and/or chair of the master's assignment committee and submitted to the programme director for review and approval.
To formalise this process, the designated form must be used: Application Form Capita Selecta AP.
The Capita Selecta course can be used as course in the physics/technical electives part of the study programme.

Quantum Physics

The Quantum Physics track consists of two tracks Quantum Electronics (QE) and Quantum Optics (QO)

Quartile	Code	Course	Contact	EC	Mandatory	Elective
1A	202100078	Quantum Information	Pinkse	5	QE; QO	
1A	193530000	Introduction to Superconductivity	Dhalle	5		QE
1A	193530010	Nanophysics	Zandvliet	5		QE
1B	193570050	Advanced Quantum Mechanics	Filippi	5	CCP	XUV
1B	193400141	Nano-Electronics	Wiel, van der	5		QE
1B	202100083	Quantum Optics	Pinkse	5		QO
1B	202200295	Laser Physics and Nonlinear Optics	Slot, van der	5		QO
2A	191210880	Integrated Optics	Garcia Blanco	5		QO
2A	193530040	Intro. to High Energy Physics	Du Pree	5		QE
~~2B~~	~~202100210~~	~~Electronic Structure Theory~~[1]	~~Bokdam~~	5		~~QE~~

[1] *Cancelled in 26-27, contact your studyadviser to discuss your study planning.*

Last update: 19 November 2026

Applied Physics
Master's programme 2026-2027

UNIVERSITY OF TWENTE.

Photonics

Quartile	Code	Course	Contact	EC	Spec. course	Recom. elective
1A	202200044	Fundamentals of Photonics	Saive	5.0	All ANP spec.	
1A	202100078	Quantum Information	Pinkse	5.0	Quant.	Bio., Int., LM.
1B	202200295	Laser Physics Nonlinear Optics	Slot, van der	5.0	Bio, Int.	Quant., LM.
1B	202100083	Quantum Optics	Pinkse	5.0	Quant.	Bio., Int., LM.
2A	191210880	Integrated Optics	Garcia Blanco	5.0	Int., Quant.	Bio., LM.
2A	202200045	Integrated Photonic Sys. and Exp.	Marpaung	5.0	Int.	Bio., LM., Quant.
2A	202400632	Intro to Partial Differential Equations	Pérez Arancibia	4.0		Bio., Int., LM., Quant.
2B	193500000	Biomedical Optics	Vellekoop	5.0	Bio.	Quant., Int., LM.
2B	201500405	Complex Function Theory	Zwart	3.0		Bio., Int., LM., Quant.
2B	202200047	NanoPlasmonics	Lin	5.0	LM	Bio., Int., Quant.

Last update: 19 November 2026

Applied Physics
Master's programme 2026-2027

UNIVERSITY OF TWENTE.

Materials Science

Quartile	Code	Course	Contact	EC	Spec. course	Recom. elective
1A	193700010	Characterization	Wenderich	5.0	IMS, XUV	
1A	202000694	Classical Mechanics	Filippi	4.0		CCP
1A	193530010	Nanophysics	Zandvliet	5.0	ICE, PIN, QTM, XUV	EMS, IMS, CCP
1A	193530000	Intr. to Superconductivity	Dhalle	5.0	EMS, ICE, QTM	IMS
1B	191210730	Fabrication of Micro- and Nanodevices	Kovalgin	5.0		XUV
1B	201100214	Applications of Superconductivity	Dhalle	5.0	EMS	
1B	193570050	Advanced Quantum Mechanics	Filippi	5.0	CCP	XUV
1B	201700026	Electr. Power Eng. and Sys. Integr.	Dhalle	5.0		EMS
2A	193700040	Inorganic Materials Science	Beaumer	5.0	IMS, XUV	
2A	202100223	Computational Physics	Filippi	5.0		CCP
2A	202600001	Machine Learning	Bokdam	5.0		CCP
2A	201700025	Solar Energy	Saive	5.0	IMS	
2A	193530040	Introduct. to High Energy Physics	Du Pree	5.0		EMS
2A	193550020	Surfaces and Thin Layers	Wormeester	5.0	IMS, PIN, XUV	EMS
2A	201400037	Linear Solid Mechanics	Rege	5.0		EMS
2B	202500546	Advanced Condensed Matter Physics	Bampoulis	5.0	PIN	
2B	202300191	X-ray Characterization for S&T	Beld	5.0	XUV	
2B	201900042	Nanomaterials Research	Van den Beld	5.0		XUV
2B	202400605	Cooling Science and Technology	Vanapalli	5.0	EMS	
~~2B~~	~~202100210~~	~~Electronic Structure Theory~~[1]	~~Bokdam~~	5.0	~~CCP~~	

Physics of Fluids

Quartile	Code	Course	Contact	EC	Spec. course	Recom. elective
1A	193570010	Advanced Fluid Mechanics	Diddens	5.0	PoF	EMS,
1A	191560430	Nonlinear Dynamics	Meijer	5.0		PoF
1B	193572010	Physics of Bubbles	Versluis	2.5		PoF
1B	193580010	Turbulence	Stevens	5.0		PoF
1B	193565000	Capillarity Phenomena	Snoeijer	5.0		EMS, PoF
2A	193580020	Experimental Techniques in PoF	Marin	5.0	PoF	EMS
2A	193400121	Nano-Fluidics	Sîretanu	5.0		PoF
2A	193542070	Medical Acoustics	Lajonie	5.0		PoF
2A	201400194	Granular Matter	Meer, van der	5.0		PoF
2B	201500405	Complex Function Theory	Zwart	3.0		ANP, CCP, PoF
2B	191154731	Computational Fluid Dynamics [2]	Weide, van der	5.0		PoF
2B	201800131	Numerical Meth. for Engineers [2]	Lamertink	5.0		PoF, EMS

[2] *Due to overlap, these courses cannot be followed both.*

Last update: 19 November 2026

Applied Physics
Master's programme 2026-2027

UNIVERSITY OF TWENTE.

Materials Science & Engineering Multidisciplinary Specialisation AP-CSE-ME

Quartile	Code	Course	Contact	EC	Spec. course	Recom. elective
1A	193700010	Characterization	Wenderich	5.0	MS&E	
1B						
2A	193700040	Inorganic Materials Science	Baeumer	5.0	MS&E, IMS, XUV	
2A	193550020	Surfaces and Thin Layers	Wormeester	5.0	MS&E, IMS, PIN, XUV	EMS
2B	202100319	Phase transformations in manufacturing	Bor	5.0	MS&E	

Fluid Mechanics Multidisciplinary Specialisation AP-ME

Quartile	Code	Course	Contact	EC	Spec. course	Recom. elective
1A	193570010	Advanced Fluid Mechanics [3]	Diddens	5.0	FM	
1A	201500136	Fluid Mechanics II [3]	Ströer	5.0	FM	
1A	201800083	Advanced colloids and interfaces	Wood	5.0		FM
1A	191157750	Engineering Acoustics	Wijnant	5.0		FM
1A	202000245	Experimental methods in Fluid and Thermal Engineering	Smink	5.0		FM
1A	201900074	Fundamentals of Numerical Methods	Weide, van der	5.0		FM
1A	202200103	Image processing and computer vision	Niu	5.0		FM
1A	191560430	Nonlinear dynamics	Meijer	5.0		FM
1B	193572010	Physics of Bubbles	Versluis	2.5		FM
1B	193580010	Turbulence	Stevens	5.0		FM
1B	201500024	Advanced Thermodynamics [4]	Otter, den	5.0		FM
1B	201900091	Advanced Topics in Finite Element Meth.	Perdahcioglu	5.0		FM
1B	191154720	Fluid Mechanics of Turbomachines 1	Withag	5.0		FM
1B	202200266	Hydrogen Technology	Rajamani	5.0		FM
1B	201800327	Ion Transport in Fluids	Wood	2.5		FM
1B	193565000	Capillarity Phenomena	Snoeijer	5.0		
2A	193580020	Experimental Techniques in PoF	Marin	5.0	FM	
2A	202000244	Aircraft & Wind Turbine Aerodyn.s	Garrel, van	5.0		FM
2A	202001436	Biofluid Dynamics: Th. & Analysis	Jain	5.0		FM
2A	201400194	Granular Matter	Meer, v.d.	5.0		FM
2A	193400121	Nano-Fluidics	Sîretanu	5.0		FM
2A	191155730	Tribology	Osara	5.0		FM
2A	201700218	Turbulent Combustion	Kok	5.0		FM
2B	201500405	Complex Function Theory	Weele	3.0		FM
2B	191154340	Gasdynamics	Hirschberg	5.0		FM
2B	191154731	Computational Fluid Dynamics [2]	Weide, v.d.	5.0		FM
2B	201800131	Numerical Meth. for Engineers [2]	Lammertink	5.0		FM
2B	201100254	Adv. Comp. Vision and Pattern Recogn.	Spreeuwers	5.0		FM
2B	201400300	Multiphase Flows	Jarray	5.0		FM
2B	201700024	Wind Energy	Garrel, van	5.0		FM

[3] *Due to overlap, these courses cannot be followed both.*

[4] *Due to overlap, in the B-TN programme, not available for M-AP students*

Last update: 19 November 2026