

In this Applied master's programme the courses and planning of the courses in the Applied Physics of the academic year 2025-2026 programme are listed.
Among other things the curricula per cohort and the transitional arrangements are published on the website [Curriculum master AP](#)

Compulsory courses

Quartile	Course Code	Course Name	Contact	EC
1A	202200093	Quantum Mechanics 2	Leppert	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	De Beer	20
		Master's Assignment, General Aspects	De Beer	20

Specialisation courses Applied Physics

More and detailed information about the Applied Physics specialisations can be found on the website <https://www.utwente.nl/en/education/master/programmes/applied-physics/specialisations/>

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	Renema	5	QE; QO	
1A	193530000	Introduction to Superconductivity	Dhalle	5		QE
1A	193530010	Nanophysics	Zandvliet	5		QE
1B	193530040	Intro. to High Energy Physics	Du Pree	5		QE
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
2B	193510040	Theoretical Solid-State Physics	Leppert	5		QE
2B	193570050	Advanced Quantum Mechanics	Leppert	5	QE; QO	
Year	202100210	Electronic Structure Theory¹	Leppert	5		QE

¹ Participation in and scheduling of the Electronic Structure Theory course will be in consultation with the contact person/examiner.

Applied Nano-Photonics

Quartile	Code	Course	Contact	EC	SC ¹⁾	RC ¹⁾
1A	202200044	Fundamentals of Photonics	Saive	5.0	All ANP spec.	
1A	202100078	Quantum Information	Renema	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	202200048	Classical and Quantum Emitters	Ojambati	5.0	LM	Bio., Int., 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	202400780	Advanced Solid State Physics	Leppert	5.0	LM	Bio., Int., Quant.
2B	202200047	NanoPlasmonics	Lin	5.0	LM	Bio., Int., Quant.

Nano-Electronic materials

Quartile	Code	Course	Contact	EC	SC ¹⁾	RC ¹⁾
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	201700026	Electr. Power Eng. and Sys. Integr.	Dhalle	5.0		EMS
1B	193530040	Introduct. to High Energy Physics	Du Pree	5.0		EMS
1B	193570050	Advanced Quantum Mechanics	Leppert	5.0	CCP	XUV
2A	193700040	Inorganic Materials Science	?	5.0	IMS, XUV	
2A	202100223	Computational Physics	Filippi	5.0		CCP
2A	202100224	Machine Learning	Bokdam	3-5		CCP
2A	201700025	Solar Energy	Saive	5.0	IMS	
2A	193550020	Surfaces and Thin Layers	Wormeester	5.0	IMS, PIN, XUV	EMS
2A	201400037	Linear Solid Mechanics	Rege	5.0		EMS
2B	202400780	Advanced Solid-State Physics	Leppert	5.0	CCP, ICE	EMS, IMS, PIN, XUV, QTM
2B	201500167	MTCMP	Bampoulis	5.0	PIN	
2B	202300191	X-ray Characterization for S&T	Ackermann	5.0	XUV	
2B	201900042	Nanomaterials Research	Van den Beld	5.0		XUV
2B	202400605	Cooling Science and Technology	Vanapalli	5.0	EMS	
Year	202100210	Electronic Structure Theory (Self study)	Leppert	5.0	CCP	

Physics of Fluids

Quartile	Code	Course	Contact	EC	SC ¹⁾	RC ¹⁾
1A	193570010	Advanced Fluid Mechanics	Huisman	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	201400194	Granular Matter	Meer, van der	5.0		PoF
2A	202001413	Soft Matter Physics	Vutukuri	5.0		PoF
2B	201500405	Complex Function Theory	Zwart	3.0		ANP, CCP, PoF
2B	191154731	Computational Fluid Dynamics²	Weide, van der	5.0		PoF
2B	193542070	Medical Acoustics	Lajonie	5.0		PoF
2B	201800131	Numerical Meth. for Engineers²	Lamertink	5.0		PoF, EMS

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

Materials, Science & Engineering Multidisciplinary Specialisation AP-CSE-ME

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

Fluid Mechanics Multidisciplinary Specialisation AP-ME

Quartile	Code	Course	Contact	EC	SC ¹⁾	RC ¹⁾
1A	193570010	Advanced Fluid Mechanics ³	Huisman	5.0	FM	
1A	201500136	Fluid Mechanics II ³	Ströer	5.0	FM	
1A	201800083	Advanced colloids and interfaces	Wood	5.0		
1A	191157750	Engineering Acoustics	Wijnant	5.0		
1A	202000245	Experimental methods in Fluid and Thermal Engineering	Sanders	5.0		
1A	201900074	Fundamentals of Numerical Methods	Weide, van der	5.0		FM
1A	202200103	Image processing and computer vision	Abayazid	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	Otter, den	5.0		FM
1B	201900091	Advanced Topics in Finite Element Methods	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	FM
2A	201800371	Aeroacoustics		5.0		
2A	202000244	Aircraft & Wind Turbine Aerodyn.s	Garrel, van	5.0		
2A	202001436	Biofluid Dynamics: Th. & Analysis	Jain	5.0		
2A	201400194	Granular Matter	Meer, van der	5.0		
2A	193400121	Nano-Fluidics	Sîretanu	5.0		FM
2A	202001413	Soft Matter Physics	Vutukuri	5.0		FM
2A	191155730	Tribology	Osara	5.0		FM
2A	201700218	Turbulent Combustion	Kok	5.0		FM
2B	201500405	Complex Function Theory	Zwart	3.0		FM
2B	191154340	Gasdynamics	Hirschberg	5.0		FM
	191154731	Computational Fluid Dynamics ⁴	Weide, van der	5.0		FM
	201800131	Numerical Meth. for Engineers ⁴	Lammertink	5.0		FM

³ Due to overlap, this course cannot be followed in combination with each other

⁴ Due to overlap, this course cannot be followed in combination with each other

	201100254	Adv. Comp. Vision and Pattern Recognition	Spreeuwers	5.0		FM
	201400300	Multiphase Flows	Jarray	5.0		FM
	201700024	Wind Energy	Garrel, van	5.0		FM

A Capita Selecta course is used for activities done in the chair, not belonging to regular courses. The content, form and size is in consultation with the chair. There is a [form](#) to register course code, name, ECs, subject, material used, assessment and title.

¹⁾ SC is Specialization courses, RC is Recommended elective courses, see also [Curriculum AP](#).

²⁾ Students who want to participate in this course, please contact the teaching staff.