Master Quantum Engineering **WiSe2526**

*The courses listed after the modules, which are marked with an *, are exemplary. Lectures can be included in the modules according to your own interests. However, the courses must match the superordinate module designation.

Module (German)	Responsible	Course	CP	Module (English)	Weekday	Time	Room	Comment
Obligatory								
Computational Methods, Simulations & Experimental Control	Piet Schmidt	Praktikum Computational Methods, Simulations & Experimental Control	5	Computational Methods, Simulations & Experimental Control	by arrangement			
Seminar*	Piet Schmidt, Tanja Mehlstäubler	Seminar Quantum technologies with laser cooled ions and atoms	3	Seminar				The seminar accompanies the lecture 'Quantum Optics' and forms a bridge in quantum engineering for students of LUH and TUBS. Offered alternately at PTB and HITec. HITec Hannover and PTB Braunschweig - to be determined at the introductory event.
Quantenoptik	Ernst Rasel, Dennis Schlippert	VL Quantenoptik	5	Quantum Optics	Tuesday/Wednesday	12:15-13:00/12:15-13:45	1101 - B 302/1101 - F342	
		Ü Quantenoptik			Tuesday	13:00-13:45	1101 - B302	
Fortgeschrittene Festkörperphysik	Fei Ding	VL Fortgeschrittene Festkörperphysik	5	Advanced Solid State Physics	Tuesday/Wednesday	10:15-11:45	3701 - 268	
	Michael Zopf	Ü Fortgeschrittene Festkörperphysik			Thursday	12:00-14:00	3701 - 268	
Topics Quantum								
Photonik	Boris Chichkov	VL Photonik	5	Photonics	Monday	10:15-11:45	1101 - F303	
		Ü Photonik			Thursday	8:15-9:15	1101 - F442	
Nichtklassisches Licht und Nichtklassische Laserinterferometrie	Michèle Heurs	VL Nichtklassisches Licht	5	Nonclassical Light and Nonclassical Laserinterferometry	Tuesday	10:00-12:00	3401 - 103	**Please take this course only if you already have completed the lecture Nichtkalssische Laserinterferometrie in a year ago!** Otherwise this module is no longer available, since the lecture Nichtklassische Laserinterferometrie doesn't exist anymore.
Quantendynamik und theoretische Quantenoptik	Luis Santos	VL Theoretische Quantenoptik und Quantendynamik	5*	Quantum Dynamics and Theoretical Qauntum Optics	Thursday/Friday	9:00-11:00/14:00-16:00	3701 - 269	5 CP must be achieved in the entire module, therefore the Seminar Quantum Dynamics must be attended in the summer semester.
Optische Experimente und ihre Kontrolle	Benno Willke	VL Laserstabilisierung und Kontrolle optischer Experimente	5*	Optical Experiments and their Control	Thursday	10:00-12:00	3401 - 103	5 CP must be achieved in the entire module, therefore the lecture Elektronische Metrologie im Optiklabor must be attended in the summer semester.
Quantensensorik	Naceur Gaaloul, Ernst Rasel	VL Matter wave interferometry	5	Quantum Sensing	Tuesday	15:30-16:45	1101 - D326	
	Piet Schmidt, Christian Lisdat	VL Optical Clocks _____			Wednesday	15:00-17:00	HITec - 317	
Quantenkommunikation*				Quantum Communication				
Quantenmetrologie und -sensorik*	Piet Schmidt,Christian Lisdat	VL/Ü Optical Clocks	5	Quantum Metrology and Sensing	Wednesday	15:00-17:00/17:000-18:00	HITec - 317	
Quantensimulation*	Anas Abdelwahab Mohammed	VL/Ü Computational methods for quantum correlated systems	5	Quantum Simulation	Monday/Thursday	16:00-18:00/14:00-17:00	3701 - 269	
Spezialisierung Quantencomputing*	Tobias Osborne, Robert Raußendorf, Christian Ospelkaus	VL Quantencomputing und Quantenlogik mit gespeicherten Ionen	5	Specialisation Quantum Computing	Block Lecture 23.-27.02.26	9:00-15:00	1101 - F142	
Spezialisierung Quantenphysik*	Tobias Osborne	VL/Ü Quantenfeldtheorie	5	Specialisation Quantum Physics	Monday/Friday	14:00-16:00/12:00-14:00	3701 - 268	
Topics Engineering								
Advanced Quantum Technologies for Engineers	Andreas Waag, Stefanie Kroker	VL Advanced Quantum Technologies for Engineers	5	Advanced Quantum Technologies for Engineers - TUBS	Thursday	9:45-10:30	LENA 003	
		Ü Advanced Quantum Technologies for Engineers			Thursday	8:00-9:30		**Please register directly via TUBS StudIP (like you would at LUH).**
Integriete Schaltungen	Vadim Issakov	VL Integriete Schaltungen	5	TUBS (German only)	Wednesday	11:30-13:00	HS 66.3	
		Ü Integriete Schaltungen			Wednesday	13:15-14:00		**Please register directly via TUBS StudIP (like you would at LUH).**
Optische Nachrichtentechnik	Thomas Schneider	VL Optische Nachrichtentechnik mit Praktikum	6	TUBS (German only)	Tuesday	10:30-12:00	PK 3.3	
		Ü Optische Nachrichtentechnik mit Praktikum			Tuesday	12:15-13:00		
		P Optische Nachrichtentechnik mit Praktikum		TUBS (English)	by arrangement			Please contact Prof. Thomas Schneider for course entering in StudIP with quantumengineering@quest.uni-hannover and sandra.engelhardt@tu-braunschweig.de in cc.
Elektro-Magnetische Theorie für Hochfrenquenztechnik	Carsten Monka-Ewe, Jörg Schöbel	VL Elektro-Magnetische Theorie für Hochfrenquenztechnik mit Praktikum	6	TUBS (German only)	Thursday	16:45-18:15	SN 23.2	
		Ü Elektro-Magnetische Theorie für Hochfrenquenztechnik mit Praktikum			Wednesday	16:45-18:15	SN 22.2	
		P Elektro-Magnetische Theorie für Hochfrenquenztechnik mit Praktikum			by arrangement			Please contact Prof. Monka-Ewe and Prof. Schöbel for course entering in StudIP with quantumengineering@quest.uni-hannover and sandra.engelhardt@tu-braunschweig.de in cc.
Informationstheorie	Eduard Jorswieck, Jyun-Sian Wu	VL Informationstheorie	5	Information Theory - TUBS	Monday	13:15-14:45	SN 22.2	
		Ü Informationstheorie			Tuesday biweekly	8:00-9:30		**Please register directly via TUBS StudIP (like you would at LUH).**
Lineare Mikrowellenschaltung mit Praktikum	Jörg Schöbel	VL Mikrowellenschaltungstechnik I	6	TUBS (German only)	Thursday	11:30-13:00	SN 22.2	
		Ü Mikrowellenschaltungstechnik I			Tuesday	13:15-14:45		
	Sebastian Paul	P Mikrowellenpraktikum			by arrangement			Please contact Prof. Schöbel for course entering in StudIP with quantumengineering@quest.uni-hannover and sandra.engelhardt@tu-braunschweig.de in cc.
Digitale Messdatenverarbeitung mit Mikrorechnern mit Praxis	Meinhard Schilling	VL Measurement Electronics with Experiments	6	TUBS (German only)	Tuesday	13:15-14:45		
		Ü Measurement Electronics with Experiments			Thursday biweekly	9:45-11:15		**Please register directly via TUBS StudIP (like you would at LUH).**
Optische und elektronische Systeme*	Farsane Tabataba-Vakili	VL Semiconductor Optics	5	Optical and electronic systems - TUBS	Friday	11:30-13:00	MS 3.2	Please contact Prof. Tabataba-Vakili for course entering in StudIP with quantumengineering@quest.uni-hannover and sandra.engelhardt@tu-braunschweig.de in cc.
Hochfrequenztechnik*	Dirk Manteuffel	VL/Ü Elektromagnetische Modellierung		LUH (German only)	Wednesday	13:00-14:30	3403 - A141	
Digitale Technologie*				Digital technology				
Analoge Elektronik und Regelungstechnik*				Analog Electronics and Control Engineering				
Quanten und Informationen*	Tobias Voß, Christian Deppe	VL Introduction to Quantum Information Technology and Quantum Computing	5	Quantum and Information - TUBS	Tuesday	11:30-13:00	SN 22.2	
		Ü Introduction to Quantum Information Technology and Quantum Computing			Tuesday	16:45:00-18_15	LENA 003	**Please register directly via TUBS StudIP (like you would at LUH).**
Quanten und Informationen*	Stefanie Kroker	VL Applied Quantum Computing: Basics and Devices	5	Quantum and Information - TUBS	Wednesday	9:45-11:15	?	
		ÜApplied Quantum Computing: Basics and Devices			Wednesday	11:30-13:00		**Please register directly via TUBS StudIP (like you would at LUH).**
Spezialisierung Quantentechnologie*	Andreas Waag	VL/Ü Gallium Nitride Technology	5	Specialisation Quantum technology - TUBS	Wednesday	14:00-16:15	LENA 003	**Please register directly via TUBS StudIP (like you would at LUH).**
Practical Experience								
Projektarbeit	Piet Schmidt	Laborpraxis	8	Project assignment				
Quanten-Industriepraktikum A		Praxis	13	Quantum Internship A				
Quaten-Industriepraktikum B		Praxis	8	Qiuantum Internship B				
Key Competencies								
Schlüsselkompetenzen			4	Key Competences				