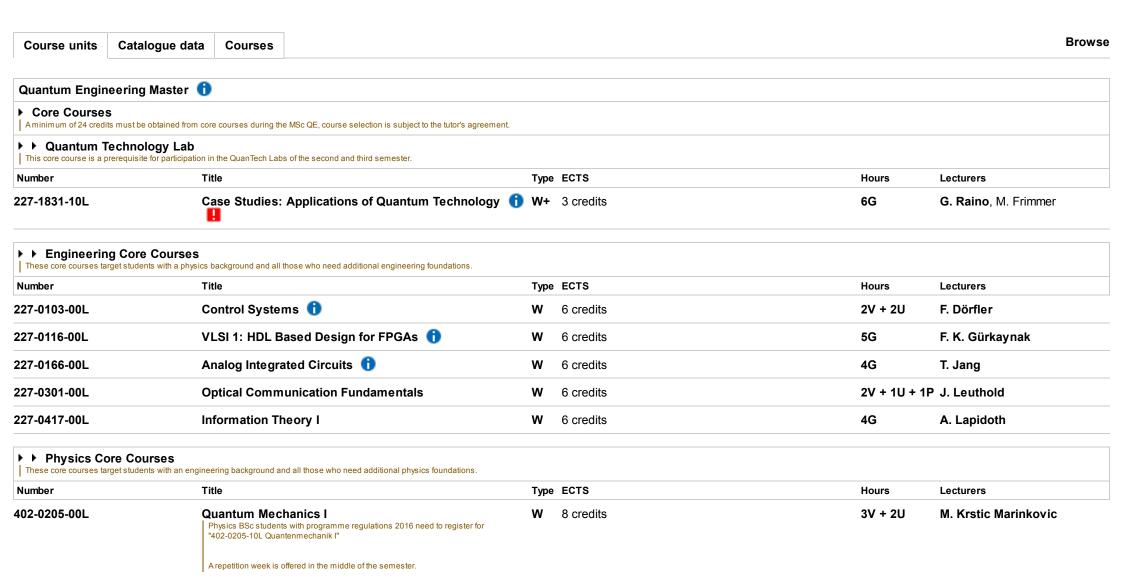


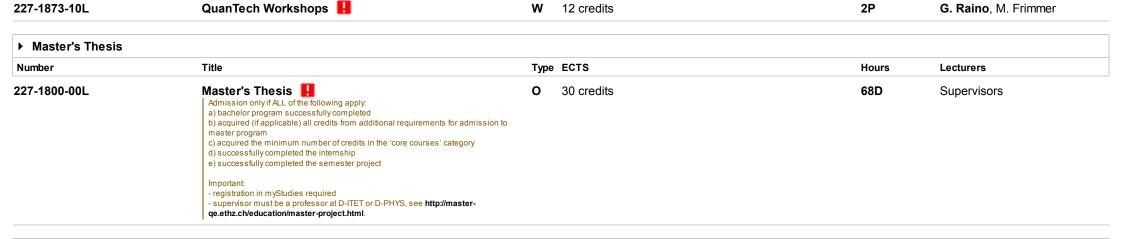
## **Course Catalogue**

## Search result: Course units in Autumn Semester 2024



402-0209-00L	Quantum Physics for Non-Physicists	W	6 credits	3V + 2U	P. Kammerlander
402-0255-00L	Introduction to Solid State Physics  Physics BSc students with programme regulations 2016 need to register for "402-0255-10L Einführung in die Festkörperphysik".	W	8 credits	3V + 2U	A. Zheludev
	A repetition week is offered in the middle of the semester.				
402-0442-00L	Quantum Optics	W	10 credits	3V + 2U	A. Imamoglu
402-0448-01L	Quantum Information Processing I: Concepts  This theory part QIP I together with the experimental part 402-0448-02L QIP II (both offered in the autumn semester) combine to the core course in experimental physics "Quantum Information Processing" (totally 10 ECTS credits). This applies to the Master's degree programme in Physics.	W	5 credits	2V + 1U	J. Renes
402-0448-02L	Quantum Information Processing II: Implementations  This experimental part QIP II together with the theory part 402-0448-01L QIP I (both offered in the autumn semester) combine to the core course in experimental physics "Quantum Information Processing" (totally 10 ECTS credits). This applies to the Master's degree programme in Physics.	W	5 credits	2V + 1U	A. Wallraff, JC. Besse
402-0861-00L	Statistical Physics	w	10 credits	4V + 2U	M. Sigrist
► Electives  This is a selection of courses par	ticularly suitable for the MSc QE. In agreement with the tutor, students may choose other courses from t	the ETH o	course catalogue.		
Number	Title	Тур	ECTS	Hours	Lecturers
227-0053-00L	High-Frequency Design Techniques 🕦	W	4 credits	2V + 2U	C. Bolognesi, T. Popovic
227-0101-00L	Discrete-Time and Statistical Signal Processing 🐧	W	6 credits	4G	HA. Loeliger
227-0145-00L	Solid State Electronics and Optics 👔	W	6 credits	4G	N. Yazdani, V. Wood
227-0146-00L	Data Conversion System Design Up until HS23 named Analog-to-Digital Converters	W	6 credits	2V + 2U	<b>T. Burger</b> , G. Cervelli, R. Reutemann
227-0157-00L	Semiconductor Devices: Physical Bases and Simulation	W	4 credits	3G	A. Schenk, C. I. Roman
227-0166-00L	Analog Integrated Circuits 🚺	W	6 credits	4G	T. Jang
227-0225-00L	Linear System Theory	W	6 credits	5G	J. Lygeros, A. Tsiamis
227-0311-00L	Qubits, Electrons, Photons	W	6 credits	3V + 2U	T. Zambelli
227-0468-00L	Analog Signal Processing and Filtering Suitable for Master Students as well as Doctoral Students.	W	6 credits	2V + 2U	H. Schmid
227-0653-00L	Quantum Measurements and Optomechanics   Quantum Measurements and Optomechanics	W	6 credits	2V + 2U	M. Frimmer
402-0465-58L	Intersubband Optoelectronics  Does not take place this semester.	W	6 credits	2V + 1U	G. Scalari, J. Faist
227-0663-00L	Nano-Optics 🕕	w	6 credits	2V + 2U	M. Frimmer

151-0563-01L	Dynamic Programming and Optimal Control 🐧	w	4 credits	2V + 1U	R. D'Andrea
252-0535-00L	Advanced Machine Learning 1	W	10 credits	3V + 2U + 4A	J. M. Buhmann, C. Cotrini Jimenez
252-0836-00L	Computer Science II 🐧	W	4 credits	2V + 2U	R. Sasse, F. Friedrich Wicker
402-0257-00L	Advanced Solid State Physics	W	10 credits	3V + 2U	W. Wegscheider
402-0317-00L	Semiconductor Materials: Fundamentals and Fabrication	W	6 credits	2V + 1U	S. Schön, W. Wegscheider
402-0402-00L	Ultrafast Laser Physics 🕦	W	10 credits	3V + 2U	L. Gallmann
402-0442-05L	Advanced Topics in Quantum Optics	W	4 credits	2G	T. Esslinger
402-0444-00L	Dissipative Quantum Systems  Does not take place this semester.	W	6 credits	2V + 1U	A. Imamoglu
402-0457-00L	Quantum Technologies for Searches of New Physics  Does not take place this semester.	W	6 credits	2V + 1U	P. Crivelli
402-0464-00L	Light-Matter Interaction in Semiconductors: Physics and Applications	W	8 credits	2V + 2U	T. Smolenski, A. Dikopoltsev
402-0468-15L	Nanomaterials for Photonic Devices	W	6 credits	2V + 1U	R. Grange, E. Bailly, R. Chapman, V. Falcone, A. Morandi
402-0469-67L	Classical and Quantum Parametric Phenomena	W	6 credits	3G	A. Eichler, A. Grimm
402-0492-00L	Experimental Techniques in Quantum and Electro- Optics	W	6 credits	2V + 1U	<b>D. Kienzler</b> , D. Prado Lopes Aude Craik
402-0535-00L	Introduction to Magnetism 🐧	W	6 credits	3G	A. Vindigni
402-0595-00L	Semiconductor Nanostructures	W	6 credits	2V + 1U	T. M. Ihn
402-0810-70L	Advanced Quantum Algorithms (University of Zurich)  No enrolment to this course at ETH Zurich. Book the corresponding module directly at UZH as an incoming student.  UZH Module Code: PHY582  Mind the enrolment deadlines at UZH: https://www.uzh.ch/cmsssl/en/studies/application/deadlines.html	W	6 credits	2V + 1U	G. Mazzola
► Semester Project					
Number	Title	Туре	e ECTS	Hours	Lecturers
227-1871-00L	Semester Project Registration in myStudies required! Supervisor must be a professor at D-ITET or D-PHYS, see http://master-qe.ethz.ch/education/semester-project.html	0	12 credits	20A	Supervisors
► Internship					
Number	Title	Туре	e ECTS	Hours	Lecturers



12 credits

external organisers

## Science in Perspective

227-1873-00L

Only courses offered under "GESS Science in Perspective" count in this category. See "Offered in" tab in course view. For more information, please refer to https://gess.ethz.ch/en/studies/science-in-perspective/SiP-FAQs.html

- » see Science in Perspective: Language Courses ETH/UZH
- » see Science in Perspective: Type A: Enhancement of Reflection Capability

Internship in Industry 📙

» Recommended Science in Perspective (Type B) for D-ITET

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