



UiT The Arctic University of Norway

Master of Science in Physics

120 credits / Campus Tromsø

The program description has been approved by the board of Faculty of Natural science and Technology on 25.09.2025



Study programme name	English: Physics - master Bokmål: Fysikk - master Nynorsk: Fysikk - master
Degree obtained	Master' degree in Physics
Target group	Master of Science in Physics are aimed at student who show interest in the mathematic, physics and the natural world and wishes to dive deeper into a specialization in physics.
Admission requirements, required prerequisite, recommended prerequisite knowledge	Admission to the Master's program in Physics requires a Bachelor's degree in Physics (180 ECTS) or equivalent qualifications. An additional requirement is specialization in physics worth the equivalent of minimum 80 ECTS. Applicants must have a minimum grade average comparable to a Norwegian C (2.5) in the ECTS scale, see the UiT webpage for International admissions for more information on how the point average is calculated. Applicants with education from non-Nordic countries must document English language proficiency. You will find more information on English language requirements on the UiT webpage for International admissions.
The study programme's Learning Outcome	<i>Knowledge – The candidate:</i> - Has a deep understanding of a range of techniques and methods used in advanced physics. - Can apply advanced mathematical and statistical methods for analysis of physical problems. - Has knowledge of the scientific method and how to conduct scientific research, with in-depth knowledge of how research is performed in state-of-the-art physics. - Has advanced knowledge in one or more of the following fields: fusion physics, climate physics, space physics, earth observation, renewable energy and machine learning. <i>Skills – The candidate:</i> - Can evaluate and analyse large amounts of scientific data in a critical manner - Can model advanced physical processes and use suitable programming tools and software for solving physical problems numerically - Can work independently with problem solving following the scientific method. - Can evaluate and analyse published theories, methods and experiments in the physics literature.

	- Can carry out an independent, limited project under supervision in physics or related fields. <i>Competences – the candidate:</i> - Can communicate scientific work both in written and orally to specialists in the field and to the public. - Can analyse academic, professional and ethical problems in the field of physics. - Can work in multi-disciplinary groups with complex problems regarding sustainable innovation - Can produce a well-structured presentation of extensive scientific work.
Academic content and description of the study programme	As a student in the master in physics program half of the time will be spent on an individual research project (thesis) and half on course work. The thesis work will be conducted in collaboration with one of the research groups at the department. Below are recommended preparatory courses for the different topics the master's thesis can be focused on. Besides the recommended courses, the student can supplement with relevant courses from other study programs. <i>Compulsory courses</i> - BED-3200 Sustainable innovations - FYS-3900 Master's Thesis in Physics <i>Recommended courses (by topic)</i> Fusion physics • FYS-3026 Fusion plasma physics • FYS-3035 Stochastic modelling and nonlinear dynamics • MAT-3200 Mathematical methods • MAT-3202 Nonlinear waves Space physics • FYS-3000 Introduction to satellites and rockets techniques and space instrumentation • FYS-3002 Techniques for investigating the near-earth space environments • FYS-3003 Space physics • FYS-3016 Dust and complex (dusty) plasma in space and ionospheres

	Earth observation			
	• FYS-3001 Physics of remote sensing • FYS-3002 Techniques for investigating the near-earth space environments • FYS-3023 Applied remote sensing • FYS-3012 Pattern recognition			
	Climate			
	• FYS-3026 Fusion plasma physics • FYS-3030 Fluid dynamics in atmospheres and oceans • FYS-3034 Wind modelling • MAT-3200 Mathematical methods • MAT-3213 Climate dynamics			
	Renewable energy			
	• FYS-2024 Solar energy and wind energy systems • FYS-2025 General meteorology and oceanography • FYS-3036 Solar energy materials and modelling • FYS-3030 Fluid dynamics in atmospheres and oceans • FYS-3034 Wind modelling • MAT-3200 Mathematical methods			
	Artificial intelligence			
	• FYS-3012 Pattern Recognition • FYS-3032 Health Data Analytics • FYS-3033 Deep Learning • FYS-3037 Radiation and medical imaging systems • FYS-3001 Physics of remote sensing • FYS-3023 Applied remote sensing • STA-3001 Computer-intensive statistics • STA-3002 Multivariable statistical analysis • TEK-3601 Machine vision			
Table: programme structure	Semester	10 credits	10 credits	10 credits

	1. semester	BED-3200 Sustainable innovation	Optional course	Optional course
	2. semester	Optional course	Optional course	Optional course
	3. semester	FYS-3900 Master's Thesis in Physics		
	4. semester			
Learning activities, examination and assessment	The master's degree should mainly consist of courses at the master's level (3000 level), with a minimum of two (20 ECTS) in physics. For a full description, see the supplementary provisions. The study program includes a variety of teaching methods. Courses offered in the program have lectures, where theory and academic themes are discussed, in combination with exercises. Courses can also include laboratory work, pc-lab, work in field or a combination of these. Mandatory coursework can be given in a course. Approved assignments give access to the exam. The examination structure differs between the courses, from written examination to project work reports, presentation of scientific work or oral examination. And often a combination of these methods. The master's thesis is an individual research project performed under supervision. If the thesis involves work in a laboratory, in the field or on a research cruise, it is mandatory to conduct necessary safety courses prior to commencing this work.			
The study programme's relevance	The study program leads to a solid understanding of physics, with particular emphasis on applied physics. The programme leads to a broad range of exciting career options, both domestically and abroad, and within research, industry, administration and teaching, both in private and public sector. A Master's degree qualifies for admission to PhD studies in physics, depending on satisfactory marks in the Master's and Bachelor's degree. PhD studies in physics are offered at UiT The Arctic University of Norway			
Work scope	Full time students are expected to allocate a normal work week to study, which is 40 hours a week. Throughout the year, it reflects a workload of 1500-1800 hours.			
For master's theses/independent work in master's degrees	The master's degree thesis consists of an independent scientific work of two semesters, equivalent to 60 ECTS credits. The work involved in the master thesis is done individually, and the student is required to be able to work independently under supervision. A supervision contract for the thesis is set up before the start-up, which regulates rights, obligations and resource use and resource access for the parties involved. Assessment form is submission of a master thesis and final oral exam.			

	The department strives to offer students writing their master thesis a place in a shared office with other master students.
Language of instruction and examination	The language of instruction is English, and all the syllabus material is in English. Examination questions will be given in English but may be answered either in English or in a Scandinavian language.
Internationalisation	The master's program in physics is open to international admission, so students in the master's program in physics are both Norwegian and international students. A number of exchange students are also given admission to the courses on master level at the Faculty of science and technology.
Student exchange	Exchange studies abroad or at the University Centre in Svalbard (UNIS) can be recognized in the master's degree if recommended by your supervisor, and only if the external courses are validated prior to departure. For an overview of relevant courses at UNIS, please contact the administration at The Department of Physics and Technology. For studies abroad, there are several exchange agreements to a broad range of universities. For more information, see the exchange agreements.
Supervised professional training	Not relevant
Administrative responsibility and academic responsibility	The Department of Physics and Technology has the administrative responsibility for the program. The study program has a program board responsible for quality assurance and for managing questions related to the study program. Students are represented in the program board.
Quality assurance	Quality is assured through periodic evaluation of the study program and the courses included in the program as outlined by the System for Quality in Education at UiT – The Arctic University of Norway and the Faculty of Science and Technology regulations. The Department of physics and technology and the program board are responsible.
Other regulations	Faculty of Science and Technology has prepared Supplementary provisions for the two years master's degree program (120 credits)

