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Appendices to the Teaching and Examination Regulations

2022-2023

Master's degree programme in Applied Physics

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Appendix I Teaching outcomes of the degree programme (art. 3.1)

1. Knowledge and understanding

The master graduate in Applied Physics

- 1.1. understands the advanced concepts of physics, including the necessary mathematics and computer science, at a level which permits admission to a PhD programme;
- 1.2. is familiar with the advanced quantitative character of physics and with the relevant research methods;
- 1.3. has operational knowledge and design skills in the field of applied physics;
- 1.4. has a thorough understanding the current state of the art in materials science, more specifically of structure, functional properties and characterisation of advanced materials;
- 1.5. has basic knowledge in the present field of business and management;

2. Application of knowledge and understanding

The master graduate in Applied Physics

- 2.1. is capable of carrying out research, aimed at understanding of physical phenomena that are potentially usable in applications, or is capable of developing applications of physical phenomena;
- 2.2. is capable of analyzing a (new) complex applied problem, and to use modelling skills to develop a structured and well-planned research approach;
- 2.3. is capable of applying acquired specific knowledge and mathematical, experimental, and computer skills to solve physical problems in the relevant subject area, as well as related subject areas and fields;
- 2.4. has developed an attitude aimed at seeking new applications;
- 2.5. has experience with the use of complicated apparatus and/or with the use of advanced programming tools;
- 2.6. has experience in application of applied physics in an industrial environment or in an applied physics research environment abroad;
- 2.7. is capable of collaborate in a (multi-disciplinary) research and design team;

3. Assessment

The master graduate in Applied Physics

- 3.1. is capable of obtaining relevant information using modern information channels, and to interpret this information critically;
- 3.2. is capable of managing and assessing personal and others' actions within a highly scientific and professional context, taking societal and ethical aspects into account;
- 3.3. is able to draw conclusions on the basis of limited or incomplete information, and is able to realize and formulate the limitations of such conclusions;

4. Communication skills

The master graduate in Applied Physics

- 4.1. is capable of communicating clearly in English, both verbally and in writing, on the subject and relevant applications, at a level which is understandable to experts and non-experts, and using modern communication tools;

5. Learning skills

The master graduate in Applied Physics

- 5.1. is capable of addressing issues inside as well as outside the main subject area, therefore and thereby gaining new knowledge and skills;
- 5.2. is able to recognize potential applications of recent advances in physics.



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Appendix II Tracks of the degree programme (art. 3.6)

The degree programme of the Applied Physics master offers no separate tracks.



Appendix III Content of the degree programme (art. 3.8)

The assessment method(s) of the courses below can be found in the assessment plan of the degree programme and on Ocasys.

Course unit (course code)	ECTS	Practical	Entry Requirements
Characterisation of Materials (WMPH021-05)	5		
Computational Physics (WMPH007-05)	5	X	
Cross-disciplinary Materials Science (WMPH049-05)	5		
Functional Properties (WMPH015-05)	5		
Mechanical Properties (WMPH023-05)	5		
Mesosopic Physics (WMPH037-05)	5		
Structure at Macro, Meso and Nano Scale (WMPH020-05)	5		
Physics with Industry (WMPH041-05)	5		
Optional courses in Applied Physics	20	See app. IV	See appendix IV
Industrial Internship (WMPH003-20)	20		Passed 45 ECTS of the masters's degree programme
Applied Physics Master Research Project (WMPH901-40)	40	X	Passed 45 ECTS of the masters's degree programme



Appendix IV Electives (art. 3.9.1)

The assessment method(s) of the courses below can be found in the assessment plan of the degree programme and on Ocasys.

Course unit (course code)	ECTS	Practical	Entry Requirements
Bio-inspired Designer Materials (WMCH009-05)	5		
Memristive Devices (WMPH043-05)	5		
Multibody and Non-Linear Dynamics	5		
Neuromorphic Circuit Design (WMPH044-05)	5		
Optoelectronic Devices (WMPH042-05)	5		
Physics of Lasers (WMPH027-05)	5	X	
Polymer Physics (WMCH025-05)	5		
Robotics for IEM (WMIE005-05)	5		
Smart Materials for Engineering (WMME021-05)	5		
Surface Interactions in Electromechanical Systems (WMPH045-05)	5		
Surfaces and Interfaces (WMPH014-05)	5		
Theoretical Condensed Matter Physics (WMPH031-05)	5		
Ultrafast Time-resolved Spectroscopy (WMPH040-05)	5	X	
Biennial courses, offered in 2023-2024			
Micromechanics (WMPH012-05)	5		



Appendix V Entry requirements and compulsory order of examinations (art. 4.4)

For students admitted to the degree programme the conditional entry requirements for individual modules and order of examinations are listed in Ocasys.

Appendix VI Admission to the degree programme and different tracks (art. 2.1A.1 + 2.1B.1)

Graduates of the Bachelor's degree programme in Applied Physics of the University of Groningen are considered to have adequate knowledge and skills to be admissible into the Master's degree programme of Applied Physics.

A dedicated 15 ECTS pre-master programme is composed for graduates of the Bachelor's degree programme in Physics of the University of Groningen and consists of the following three course units:

- Device Physics (WBPH037-05; 5 ECTS)
- Physics of Fluids (WBPH042-05; 5 ECTS)
- Solid State Physics 1 (WBPH030-05; 5 ECTS)

Bachelor Physics graduates who successfully complete this programme are considered admissible into the Master's degree programme of Applied Physics.

Students with a background in a physics or related bachelor's degree programme and interested in pursuing a master's degree programme in Applied Physics are encouraged to apply through the Admissions Office of the Faculty of Science and Engineering. The Board of Admissions of Physics and Applied Physics will then assess the application and decides whether the applicant has sufficient background to register for the programme, possibly after following a bridging pre-master's programme.

Appendix VII Transitional provisions (art. 7.1)

There are no transitional provisions for Applied Physics students.

Appendix VIII Additional Requirements Open degree Programmes (Art. 3.10)

Students wishing to pursue an open degree programme may file a request with the Board of Examiners of Physics and Applied Physics. The Board of Examiners will evaluate whether the proposed curriculum meets the learning outcomes of the degree programme.



Appendix IX Admission

Application and decision deadlines for admission (art. 2.7.1 and 2.7.3)

Programmes starting on 1 September 2022

Programme	Deadline of Application	Deadline of decision
Behavioural and Cognitive Neurosciences	1 May 2022	1 June 2022
Biology	1 May 2022	1 June 2022
Biomedical Engineering	1 May 2022	1 June 2022
Biomedical Sciences	1 May 2022	1 June 2022
Biomolecular Sciences	1 May 2022	1 June 2022
Ecology and Evolution	1 May 2022	1 June 2022
Energy and Environmental Sciences	1 May 2022	1 June 2022
Human-Machine Communication	1 May 2022	1 June 2022
Marine Biology	1 May 2022	1 June 2022
Mechanical Engineering	1 May 2022	1 June 2022
Medical Pharmaceutical Sciences	1 May 2022	1 June 2022
Nanoscience: for non-EU/EEA students	1 February 2022	1 June 2022
Nanoscience: for EU/EEA students	1 May 2022	1 June 2022
Science Education and Communication	1 May 2022	1 June 2022

Programmes starting on 1 September 2022 and 1 February 2023

Programme	Deadline of Application for 1 September	Deadline of decision for 1 September	Deadline of Application for 1 February	Deadline of decision for 1 February
Applied Mathematics	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Applied Physics	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Artificial Intelligence	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Astronomy	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Chemical Engineering	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Chemistry	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Computing Science	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Farmacie	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Industrial Engineering and Management	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Mathematics	1 May 2022	1 June 2022	15 October 2022	15 November 2022
Physics	1 May 2022	1 June 2022	15 October 2022	15 November 2022