Appendix I Teaching outcomes of the degree programme (art. 1.3)

The master graduate in Applied Physics…

1. Knowledge and understanding
   - 1.1. understands the basic 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 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 of materials science and more specifically of structure, functional properties and characterisation of advanced materials;
   - 1.5. has some knowledge in the field of business and management;

2. Application of knowledge and understanding
   - 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 develop a structured and well-planned research approach;
   - 2.3. is capable of applying his/her specific knowledge and skills in his/her own and related subject areas;
   - 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 collaborating in a (multi-disciplinary) research and design team;

3. Judgement
   - 3.1. is capable of obtaining relevant information using modern information channels, and to interpret this information critically;
   - 3.2. is capable of judging his/her and others' actions within a scientific 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
   - 4.1. is capable of communicating clearly, verbally and in writing, on his/her subject and relevant applications, at a level which is understandable to experts and non-experts, and using modern communication tools;

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

Appendix II Specializations of the degree programme (art. 2.2)

The degree programme has no particular specialization, but participates in the track Advanced Materials of the Physics and Chemistry master degree programmes.

Appendix III Content of the degree programme (art. 2.3)

Specialization Advanced Materials

Course unit	ECTS	Practical	Entry Requirements
Computational Physics	5	X	
Cross-disciplinary Materials Science	5		
Functional Properties	5		
Structure at Macro, Meso and Nano Scale	5		
Characterisation of Materials	5		
Mechanical Properties	5		
Mesoscopic Physics	5		
Elective specializing courses	15	See app. IV	See appendix IV
Courses in business and management	5	See app. IV	See appendix IV
General Physics Colloquium	-		
Internship in Industry	20		
Scientific Integrity	-		
Master's Research Project (Applied Physics)	45	X	Passed 35 ECTS of the masters's degree programme

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Appendix IV Electives (art. 2.4)

Optional Courses in Science & Engineering

Applied Physics

Course unit	ECTS	Practical	Entry Requirements
Micromechanics	5		
Robotics	5		
Mechatronics	5		
Statistical signal processing	5	X	
Statistical Methods in Physics	5		
Modern Laser Microscopy	5		

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Theoretical Physics

Course unit	ECTS	Practical	Entry Requirements
Atomic and Molecular Interactions	5		
Advanced Quantum Mechanics	5		
Non Linear Optics	5		
Theoretical Condensed Matter Physics	5		
Mathematical Methods of Physics	5		

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Other advanced physics courses

Course unit	ECTS	Practical	Entry Requirements
Surfaces and Interfaces	5		
Radiation Physics	5		
Physics of Lasers	5	X	
Ultrafast Time-Resolved Spectroscopy	5	X	

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Advanced mathematics courses

Course unit	ECTS	Practical	Entry Requirements
Computational Methods of Science	5	X	
Computational Fluid Dynamics	5	X	
Calculus of Variations and Optimal Control	5		
Numerical Mathematics 2	5	X	
Functional Analysis	5		

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Chemistry and chemical engineering

Course unit	ECTS	Practical	Entry Requirements
Technical Thermodynamics	5		
Polymer Physics	5		

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Optional Business courses

Course unit	ECTS	Practical	Entry Requirements
Environmental and Resource Economics	5		
Strategic Management & Technology	5		
Global Change A	5	X	
Process Improvement and Change	5		
Game Theory	5		
Sustainability for Engineers	5	X	
The student is allowed to choose other courses in Business and Management on individual approval of the Board of Examiners	5	See app. III or IV of the corresponding programme	See app. III or IV of the corresponding programme

The assessment method of the courses can be found in the assessment plan of the degree programme and on Ocasys

Appendix V Entry requirements and compulsory order of examinations (art. 3.2)

For students admitted to the programme there are no entry requirements for the individual Modules.

Appendix VI Admission to the degree programme and different specializations (art. 4.1.1 + art. 4.2)

Holders of the following Bachelor's degrees from the University of Groningen are considered to have sufficient knowledge and skills and will be admitted to the Master's degree programme in Physics on that basis:
- BSc Technische Natuurkunde

Appendix VII

Application deadlines for admission (art. 4.6.1)

Deadline of Application	Non-EU students	EU students
Nanoscience	February 1st 2015	May 1 st 2015
Behavioural and Cognitive Neurosciences	May 1st 2015	May 1st 2015
Biomolecular Sciences (topprogramme)	May 1st 2015	May 1st 2015
Evolutionary Biology (topprogramme/EM)	January 15th 2015	January 15th 2015
Remaining FMNS Masters	May 1st 2015	May 1st 2015

Decision deadlines (art. 4.6.3)

Deadline of Decision	Non-EU students	EU students
Nanoscience	June 1st 2015	June 1st 2015
Behavioural and Cognitive Neurosciences	June 1st 2015	June 1st 2015
Biomolecular Sciences (topprogramme)	June 1st 2015	June 1st 2015
Evolutionary Biology (topprogramme/EM)	June 1st 2015	June 1st 2015
Remaining FMNS Masters	November 1st 2015	November 1st 2015