Appendix 1 Module descriptions

module no.	module name	responsible lecturer
Phy-Ma-Vert	Specialisation Physics	Prof. Dr. M. Kobel
contents and qualification aims	In this module students elect one of six possible physics fields: - applied solid-state physics and photonics, - electronic properties of solids, - soft condensed matter and biological physics, - The Structure of Condensed Matter, - Particle and Nuclear Physics, - Theoretical Physics. Students have gained an overview of existing knowledge in the specialisation chosen, they know significant developments of recent years and current unresolved questions and have become familiar with this field to a degree that they can join current international research activities. Students are able to understand and conduct in-depth work on problems of modern physics.	
types of teaching and learning	The module comprises lectures and tutorials with a total of 12 SWS and, depending on students' choices, a lab course with a total of 4 SWS or self-study with a total of 4 SWS. According to the specialisation area elected, students choose the required and the required elective courses to the stated extent from the catalogue Specialisation Areas Master for the Subject Area Physics; the catalogue is made public through the usual information channels of the department at the beginning of the semester including the required language of instruction.	
prerequisites for participation	none	
usability	The module is a required module of the Master's programme Physics. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students can earn credits after having passed the module exam. The module exam consists of an oral exam of 45 minutes duration. Before being admitted to the exam, students must create a portfolio of written problem solving tasks.	
credits and grades	Students can earn 15 credits. The module grade is equivalent to the grade given for the oral exam.	
frequency of the module	The module is offered in each semester.	
workload	The total workload is 450 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-Hsem	Advanced Scientific Seminar	Prof. Dr. M. Kobel
contents and qualification aims	Depending on students' choices, the module comprises a special area chosen from the catalogue Master's Advanced Seminars. The chosen area focuses on issues of advanced scientific facts and relationships. Students are able to get familiar with the topics using technical literature and/or original publications and to present them comprehensibly using suitable aids. They can follow such presentations and discuss the scientific facts with their peers.	
types of teaching and learning	2 SWS seminars and 1 SWS self-study. Students choose the classes to the indicated extent from the catalogue Master's Advanced Seminars of the Subject Area Physics; the catalogue is made public through the usual information channels of the department at the beginning of the semester including the required language of instruction.	
prerequisites for participation	none	
usability	The module is a required module in the Master's programme Physics. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of an ungraded oral presentation of 45 minutes duration.	
credits and grades	Students can earn 6 credits through the module, the module is assessed on a pass or fail base only.	
frequency of the module	The module is offered in each semester.	
workload	The total workload is 180 hours.	
duration of the module	The module comprises 1 semester.	

module no.	module name	responsible lecturer
Phy-Ma-Exp	Experimental Physics	Prof. Dr. H.-H. Klauß
contents and qualification aims	Students have an overview of the key concepts of experimental physics and comprehend its laws. They identify common strategies in the experimental investigation of structures and excitations of physical systems at different scales of size and energy. They are able to correlate physical concepts and methods of different experimental fields and to combine them.	
types of teaching and learning	3 SWS lectures, 1 SWS discussion classes, 1 SWS tutorials and 3 SWS self-study. The language of instruction in lectures is German. The language of instruction in discussion classes and tutorials is German and English.	
prerequisites for participation	Knowledge in the field of the solid-state, atomic, molecular, nuclear and particle physics is prerequisite. For the independent acquisition of these prerequisites, search the sources given at this website: http://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_mathematik_and_naturwissenschaften/fachrichtung_physik/studium/lehrveranstaltungen	
usability	The module is a required module in the Master's programme Physics. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module exam consists of an oral exam of 45 minutes duration.	
credits and grades	Students can earn 13 credit points through the module. The module grade is equivalent to the grade given for the oral exam.	
frequency of the module	The module is offered in each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
{Phy-Ma-Theo|	Theoretical Physics	Prof. Dr. W. {Strunz|
contents and qualification aims	Students have an overview of the fields of theoretical physics, understand their interrelations and expand their theoretical knowledge. Students are trained to give the most comprehensible theoretical descriptions possible of selected physical phenomena and to combine the theoretical fundamentals and methods that they had known so far predominantly as individual phenomena. They are able to explore complex physics issues independently and theoretically.	
types of teaching and learning	3 SWS lectures, 1 SWS discussion classes, 1 SWS tutorials and 3 SWS self-study. The language of instruction in lectures is German. The language of instruction in discussion classes and tutorials is German and English.	
prerequisites for participation	Knowledge of theoretical mechanics, electrodynamics, quantum theory, thermodynamics and statistical physics is prerequisite. For the independent acquisition of these prerequisites, search the sources given at this website: http://tu-dresden.de/die_tu_dresden/fakultaeten/fakultaet_mathematik_and_naturwissenschaften/fachrichtung_physik/studium	
usability	The module is a required module in the Master's programme Physics. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module exam consists of an oral exam of 45 minutes duration.	
credits and grades	Students can earn 13 credit points through the module. The module grade is equivalent to the grade given for the oral exam.	
frequency of the module	The module is offered in each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
{Phy-Ma-NpErg-MAT|	Non-Physics Supplementary Course Mathematics	Prof. Dr. W. Walter
contents and qualification aims	Students have a basic understanding of mathematical issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have basic competencies in dealing with elements of algebra and number theory, geometry, numerical mathematics or higher analysis and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics, of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-BIM	Non-Physics Supplementary Course Biomathematics	Prof. Dr. A. {Deutsch|
contents and qualification aims	Students have a basic understanding of biomathematical issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have basic competencies in mathematical and statistical modelling of biological issues of genetics and/or of evolutionary, cell and developmental biology, respectively, and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-CHE	Non-Physics Supplementary Course Chemistry	Prof. Dr. T. Wolff
contents and qualification aims	Students have a basic understanding of chemical issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have practical skills in dealing with the fundamentals and principles of general, inorganic, organic or physical chemistry and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each winter semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-BIO	Non-Physics Supplementary Course Biology	Prof. Dr. M. Ansorge-Schumacher
contents and qualification aims	Students have a basic understanding of biological issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics they have practical competencies regarding the fundamentals and principles of the general genetics, the anatomy and morphology of plants, the physiology of microorganisms or of developmental and cell biology and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-MBI	Non-Physics Supplementary Course Molecular Biology	Prof. Dr. F. Stewart
contents and qualification aims	Students have a basic understanding of molecular biological issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have practical competencies regarding the fundamentals and principles of chemical synthesis and biosynthesis, respectively, and of molecular bioengineering and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-INF	Non-Physics Supplementary Course Computer Science	Prof. Dr. G. Weber
contents and qualification aims	Students have a basic understanding of media informatics issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have practical skills in dealing with algorithms and data structures, programming, software technology, databases, computer networks or computer graphics and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-PHI	Non-Physics Supplementary Course Philosophy	Prof. Dr. G. Schönrich
contents and qualification aims	Students have a basic understanding of philosophical issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics they have basic competencies regarding philosophical propaedeutics, theoretical philosophy, the philosophy of technology, the philosophy of nature or of ethics in science and technology and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-ELT	Non-Physics Supplementary Course Electrical Engineering	Prof. T. {Mikolajick|
contents and qualification aims	Students have a basic understanding of electrical engineering questions and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have practical competencies regarding electronic circuits, microsystems, biomedical technology, nanotechnology or laser metrology and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-MSB	Non-Physics Supplementary Course Mechanical Engineering	Prof. C. Felsmann
contents and qualification aims	Students have a basic understanding of mechanical engineering issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have basic competencies regarding regenerative energy sources, energy-economic evaluation, flight mechanics, aero- and gas dynamics, space systems, hydrogen technology or nuclear reactor physics and also academic English. According to their choice from the list of minors for the Master's programme Physics, students have practical competencies regarding electronic circuits, microsystems, biomedical technology, nanotechnology or laser metrology and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-NpErg-WSW	Non-Physics Supplementary Course Materials Science	Prof. G. Cuniberti
contents and qualification aims	Students have a basic understanding of material science issues and interdisciplinary skills. According to their choice from the list of minors for the Master's programme Physics, students have basic competencies regarding the concepts and methods of molecular modelling, molecular electronics and nanostructured materials and also academic English.	
types of teaching and learning	The module comprises lectures, tutorials, seminars or lab courses with a total of von 8 SWS. Students choose the classes to the indicated extent from the list of minors for the Master's programme Physics. This list together with the required exams and coursework, grade weighting and the language of instruction is announced through the usual information channels of the department at the beginning of each semester.	
prerequisites for participation	none	
usability	This module is one of ten required elective modules in the Master's programme Physics of which students choose one. It is a prerequisite for the module Phy-Ma-WisStu.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of the exams and coursework announced in the list of minors for Master's programme Physics.	
credits and grades	Students can earn 13 credit points through the module. The module grade is calculated from the unweighted average of the grades given for the examination components.	
frequency of the module	The module is offered each semester.	
workload	The total workload is 390 hours.	
duration of the module	The module comprises 2 semester.	

module no.	module name	responsible lecturer
Phy-Ma-WisStu	Scientific Studies	Prof. Dr. Michael Kobel
contents and qualification aims	The module covers scientific studies in a special area of physics at the student's option. Students are able to apply their knowledge of the content and methods of physics to the practical solution of problems in a scientific project. They have the ability to work on a research topic on their own.	
types of teaching and learning	The module comprises 22.5 weeks of scientific work and self-study. The language of instruction is at least in part English.	
prerequisites for participation	Prerequisites are the subject-specific and language competencies of the modules Experimental Physics, Theoretical Physics, Advanced Research Seminar, Advanced Course Physics and also of one module of the Non-Physics Supplementary Courses. The module requires registration on the day the topic of the scientific project is issued pursuant to § 6 par. 6 SO.	
usability	The module is a required module in the Master's programme Physics. The module prepares students for their Master's thesis.	
prerequisites for earning credits	Students earn credits after successfully passing the module examination. The module examination consists of an ungraded scientific defence of 45 minutes duration.	
credits and grades	Students can earn 30 credit points through the module. The module is assessed as pass or fail.	
frequency of the module	The module is offered in each semester.	
workload	The workload is 900 hours.	
duration of the module	The module comprises 1 semester or 6 months, respectively.	