

<i>Practical Course M II</i>					
Identification number	Workload	Credits	Term of studying	Frequency of occurrence	Duration
MN-P-PraktMII	180 h	6 CP	1 st Semester	Continually upon consultation, every semester	1 Semester
1	Type of lessons		Contact times	Self-study times	Intended group size
	a) Preparation for experiments		---	45 h	Max 3 students
	b) Perform experiments		15 h	---	
	c) Analysis and Report		---	95 h	
	d) Exam		1 h	24 h	
2	Aims of the module and acquired skills The course consists of advanced experiments introducing students to important subfields of contemporary experimental physics. The students gain insight into relevant contemporary research by conducting experiments independently. Content of the course includes the determination of experimental quantities and their errors, modern experimental physics methods, and the written presentation of scientific results.				
3	Contents of the module Advanced methods of performing physics experiments are introduced by setting up and conducting four experiments. The experiments introduce students to modern physics research. The experiments have to be selected from one category group out of atomic physics, solid state physics, nuclear physics, biophysics, or particle physics. Experiments are selected from the catalogue of laboratory set-ups offered. The category chosen in this module must be different from the one chosen in Practical Course M II.				
4	Teaching / Learning methods After registration the participants will work in small subgroups of at most 3 students. Before carrying out an experiment, the student needs to demonstrate to have the necessary background knowledge of the experiments. For each experiment, the preparation, the measured results and the data analysis have to be documented in written form. The selected subfield of the experiments should be motivated and guided by the main focus of the selected master research fields. The experiments in atomic, solid state, biophysics, and nuclear physics are performed at the University of Cologne, while the experiments in particle physics take place at the University Bonn.				
5	Requirements for participation Fundamentals at the level of the bachelor courses in physics				
6	Type of module examinations In the categories molecular and astrophysics, solid state physics, biophysics, and nuclear physics the successful preparation, measurement and analysis of each experiment is certificated, but not graded. Failed experiments may be repeated twice.				
7	Requisites for the allocation of credits Four completed experiments are required to be admitted to an oral exam, which determines the grade of the module.				

8	Compatibility with other curricula and soft skills As elective subject in other M.Sc. programs Teamwork, collaboration capability, time management
9	Significance of the module mark for the overall grade The weight of the module is $6/111 \approx 5.4\%$.
10	Module coordinator F. Lewen, T. Lorenz, B. Maier, P. Reiter
11	Additional information Version: 05.06.2015 HK