

**ACADEMIC AGREEMENT**  
**between the**  
**PHYSICS FACULTY FROM THE UNIVERSITY OF SEVILLE**  
**and the**  
**FACHBEREICH PHYSIK DER UNIVERSITÄT MÜNSTER**

The present agreement between the Universities of Seville and Münster develops the “Double Degree Agreement” between the University of Seville and the University of Münster (Fachbereich Physik). This document relies on the mutual acceptance of subjects, and it specifies the requirements needed to get the corresponding official degrees awarded by both Universities. This document also sets out the selection criteria the students willing to be enrolled in the Double Agreement should fulfill.

## **1. General considerations**

### **Program of studies in Physics at the University of Seville:**

The “Universidad de Sevilla” offers a “Grado en Física” (Bachelor in Physics) programme with 240 ECTS to be completed in at least 4 years. The present agreement applies to three Master degrees awarded by the University of Seville: i) “Máster Interuniversitario en Física Nuclear”, ii) “Máster Universitario en Microelectrónica, Diseño y Aplicaciones de Sistemas Micro/Nanométricos”, and iii) “Máster Universitario en Ciencia y Tecnología de Nuevos Materiales”. To be admitted to any of the above mentioned 60 ECTS (1 year) Master degrees, the student has to complete either a “Grado en Física” or a Bachelor of Science (BSc) degree in Physics with at least 180 ECTS. During their Master year the students are required to select a variety of courses (mandatory and elective) and complete a “Proyecto Fin de Máster” (Master Thesis). The particular election of courses depends on the specific Master degree considered. This is specified in what follows:

- “Máster Interuniversitario en Física Nuclear”. The student should complete the three compulsory courses: “Nuclear Structure”, “Nuclear Reactions” and “Experimental Techniques in Nuclear Physics”, and three additional ones selected from the list of elective courses. The remaining 24 ECTS credits correspond to the “Proyecto Fin de Máster” (Master Thesis).
- “Máster Universitario en Microelectrónica, Diseño y Aplicaciones de Sistemas

Micro/Nanométricos”. The student should complete 24 ECTS that correspond to the 4 mandatory courses: “Dispositivos y tecnologías micro y nanométricas”, “Circuitos integrados analógicos, digitales, de señal mixta y RF (AMS/RF)”, “Aplicaciones, sistemas y técnicas para el tratamiento de la información” and “Metodologías y herramientas de CAD”. The remaining 36 ECTS correspond to 4 additional (elective) courses plus the “Proyecto Fin de Máster” (12 ECTS).

- “Máster Universitario en Ciencia y Tecnología de Nuevos Materiales”. The student should complete 35 ECTS corresponding to 4 compulsory courses (25 ECTS): “Química del estado sólido”, “Física del estado sólido”, “Síntesis de materiales y nanoestructuras” y “Técnicas de caracterización de materiales”, and the “Proyecto Fin de Máster” (10 ECTS). The remaining 25 ECTS correspond to a selection of 5 additional (elective) courses.

### **Program of studies in Physics at de University of Münster:**

The “BSc in Physik” at the Westfälische Wilhelms-Universität Münster requires 180 ECTS (3 years) and the corresponding “Master of Science in Physik” 120 ECTS (2 years). Courses taken during BSc studies that exceed the compulsory contents of the BSc programme in Münster can be recognized as equivalent to MSc courses if they fulfill the general requirements.

During the first MSc year the students complete the modules:

a) Physikalische Wahlstudien and Physikalische Vertiefung 1:	30 ECTS
b) Physikalische Vertiefung 2:	18 ECTS
c) Fachübergreifende Studien:	12 ECTS

The second MSc year contains the modules:

d) Fachliche Spezialisierung und Projektplanung	30 ECTS
e) Masterarbeit	30 ECTS

Both parties agree that the double degree proposed in the present document requires a total of at least 300 ECTS (180+120) for students from Münster and 330 ECTS (240+30+60) for students from Sevilla. At least 60 ECTS have to be taken at the guest university. Suitable combinations of “optativas” (elective) of the 4<sup>th</sup> year of the “Grado” (Bachelor) and of the Master programme in Sevilla are equivalent to the modules b) to c). The module a) is equivalent to a proper selection of mandatory and elective courses taken from the specific Master programme (Sevilla) in which the student is enrolled. It is recognized that the amount of credits for lab courses in the “Grado” in Sevilla exceeds that of the BSc programme in Münster.

The modules of the second MSc- year in Münster cover the requirements of the modules “Metodología de Proyectos” and “Proyecto Fin de Máster”.

## **2. General requirements for students registered at the University of Münster enrolled in the double degree program**

These students must meet the following requirements:

- 1) They should hold a Bachelor’s degree and must be accepted in the “Master of Science” program at the University of Münster.
- 2) Complete a minimum of 60 ECTS at the University of Seville during the first year of the Münster two-year program. The specific selection of courses depends on the Master degree of interest in Sevilla. Details are given below.
- 3) Once the first academic year in Sevilla concludes, the students will complete the second year of the “Master of Science in Physik” at the University of Münster.

After successful completion of all the two-year modules and a minimum of 300 ECTS corresponding to Bachelor’s (Grado) and Master’s programmes, the student will receive a Master’s degree from both the University of Münster and the University of Seville.

## **3. General requirements for students registered at the University of Seville enrolled in the double degree program**

These students must meet the following requirements:

- 1) They should have a “Grado in Física” by the University of Seville. It is recommended the student to take the optional module best suited to the double Master’s degree of interest:
  - “Electrónica y Electromagnetismo” for the double degree with the “Máster de Microelectrónica, Diseño y Aplicaciones de Sistemas Micro/Nanométricos”.
  - “Física Atómica Molecular y Nuclear” for the double degree with the “Máster de Física Nuclear”.
  - “Física de la Materia Condensada” for the double degree with the “Máster en Ciencia y Tecnología de Nuevos Materiales”.

- 2) Complete a minimum of 30 ECTS of a “Máster Universitario” at the University of Sevilla. The specific details are described below and depend on the particular Spanish Master degree of choice.
- 3) Complete at the University of Münster the last two terms of the “Master of Science in Physik” program. These two terms, including the Thesis defense, are expected to be completed during the period comprised between February and December.

After successful completion of all the two-year modules and a minimum of 330 ECTS corresponding to the Bachelor’s (Grado) and Master’s programmes, the student will receive a Master’s degree from both the University of Münster and the University of Sevilla.

#### **4. Specific details on the Double Agreement between Master Degrees in the Universities of Münster and Sevilla.**

In what follows we develop in detail the requirements needed by the students coming from both institutions depending on the specific Master program selected in the University of Seville.

- **Double degree with the “Máster Universitario en Microelectrónica, Diseño y Aplicaciones de Sistemas Micro/Nanométricos”**

The students from the University of Münster should complete at Sevilla:

- 30 ECTS from courses offered within the “Máster Universitario en Microelectrónica, Diseño y Aplicaciones de Sistemas Micro/Nanométricos”. At least 18 of them must correspond to mandatory courses (“obligatorios”).
- 30 ECTS chosen from the elective (“optativas”) courses offered in the “Máster de Microelectrónica, Diseño y Aplicaciones de Sistemas Micro/Nanométricos/Grado en Física”. Students are urged to attend the three courses (18 ECTS) corresponding to the module: “Electrónica y Electromagnetismo” of the “Grado” degree in Physics.

The students from the University of Seville should complete a minimum of 30 ECTS within the Master Program. At least 18 ECTS should correspond to the mandatory courses. The remaining credits can be obtained with either mandatory or elective courses offered within the Master program.

- **Double degree with the “Máster Interuniversitario en Física Nuclear”**

The students of Münster should complete at Sevilla:

- 30 ECTS from courses in the “Máster de Física Nuclear”: 18 ECTS from the three mandatory courses and 12 ECTS from elective ones (“optativas”).
- 30 ECTS from elective courses offered in the “Máster de Física Nuclear/Grado en Física”. Students are urged to attend the three courses (18 ECTS) corresponding to the module “Física Atómica, Molecular y Nuclear” of the “Grado” degree in Physics.

The students from the University of Seville should complete a minimum of 30 ECTS within the Master program. These correspond to the three mandatory courses (18 ECTS) plus two elective ones.

- **Double degree with the “Máster Universitario en Ciencia y Tecnología de Nuevos Materiales”**

The students of Münster should complete at Sevilla:

- 30 ECTS from courses in the “Máster en Ciencia y Tecnología de nuevos Materiales”. A minimum of 15 ECTS should correspond to mandatory courses.
- 30 ECTS from elective courses offered in the “Máster en Ciencia y Tecnología de nuevos Materiales/Grado en Física”. Students are urged to attend the three courses (18 ECTS) corresponding to the module “Física de la Materia Condensada” of the “Grado” degree in Physics.

The students from the University of Seville should complete a minimum of 30 ECTS within the Master program. At least 15 should correspond to mandatory courses. The remaining credits can be obtained with either mandatory or elective courses offered within the Master program.

**In all the cases the students will be oriented by their supervisors/tutors in order to select the elective courses that suit best the Master Thesis Project (“Proyecto Fin de Máster”) proposed.**

## 5. Student's selection criteria

The selection of students willing to be enrolled in the Double Degree Agreement will be performed, according to the current regulations in their home Universities, taking into account the following criteria:

- Student's Academic record in Physics.
- Language knowledge. Basic knowledge of Spanish (for German students) and, likewise, of German (for Spanish students) will be considered a merit. English language ability will also be highly assessed.

Münster, dem 10, Januar 2014

Sevilla, 10 Enero de 2014

Für den Fachbereich Physik der  
Universität Münster

Por la Universidad de Sevilla  
EL RECTOR