

Field of study: *Physics (Studies in English)*

2-year second cycle programme, full-time

Academic year: 2022/2023

Specialization: Particle Physics

First year, semester 1

| Course name/group of courses | Course code | Type of course | Option A | | Option B | | Verification of learning outcomes |
|---|--------------------------|----------------|-----------------|-----------------------|-----------------|-----------------------|-----------------------------------|
| | | | Number of hours | Number of ECTS points | Number of hours | Number of ECTS points | |
| Physics Laboratory, 2nd Level A1 or Physics Laboratory, 2nd Level A2 | 1100-4PLA1 or 1100-4PLA2 | lab | 45 | 5 | 45 | 5 | grade |
| Courses selected from the list Statistical physics | 1100-4SPA or 1100-4SPB | lecture | 45 | 7 | 45 | 7 | written or oral exam |
| | | exercises | 45 | | 45 | | |
| Intellectual property and entrepreneurship or Intellectual property and entrepreneurship with team project (Option A or Option B) | 1100-4IPE or 1100-4AF16 | lecture | 30 | 2 | 30 | 5 | written exam or project |
| | | project | 0 | 0 | 75 | | |
| Courses selected from the list Numerical analysis | | | 30 | 3 | 30 | 3 | written exam or grade |
| Courses selected from the list Advanced quantum mechanics | | lecture | 30 | 6 | 30 | 6 | written exam |
| | | exercises | 30 | | 30 | | |
| Modern Experimental Particle Physics | 1100-4MEPP | lecture | 30 | 4 | 30 | 4 | written exam |
| Selected specialization seminar | | seminar | 30 | 2 | 30 | 2 | grade |
| In total | | | 315 | 29 | 390 | 32 | |

Credit with a grade means that the grade is issued on the basis of one or more written tests or one or more written works carried out in the period of the didactic classes and in accordance with the syllabus of the subject

First year, semester 2

| Course name/group of courses | Course code | Type of course | Option A | | Option B | | Verification of learning outcomes |
|---|-------------|----------------|-----------------|-----------------------|-----------------|-----------------------|-----------------------------------|
| | | | Number of hours | Number of ECTS points | Number of hours | Number of ECTS points | |
| Introduction to Philosophy | 1100-IP | seminar | 30 | 3 | 30 | 3 | grade |
| Courses selected from the list Numerical analysis | | | 30 | 3 | 30 | 3 | written exam or grade |
| Specialization laboratory I, Particle Physics | | lab | 130 | 13 | 130 | 13 | written exam or grade |
| Selected specialization seminar | | seminar | 30 | 2 | 30 | 2 | grade |
| Modern Particle Physics Experiments | | lecture | 30 | 4 | 30 | 4 | written exam |
| Selected specialization lecture | | lecture | 30 | 2 | 30 | 2 | written exam or grade |
| General University Courses (OGUN)* | | | 40 | 4 | 10 | 1 | written exam or grade |
| In total | | | 320 | 31 | 290 | 28 | |

* 3 ECTS points should be obtained from general courses unrelated to physical sciences, i.e. humanities and social sciences (in total 5 ECTS during the 1 and 2 year)

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Second year, semester 3

| Course name/group of courses | Course code | Type of course | Option A* | | Option B | | Verification of learning outcomes |
|--------------------------------------|----------------------|----------------|-----------------|-----------------------|-----------------|-----------------------|-----------------------------------|
| | | | Number of hours | Number of ECTS points | Number of hours | Number of ECTS points | |
| Work placement | | internship | 80 | 4 | 80 | 4 | grade |
| Team project** | 1100-TP or 1100-ZPS2 | project | 75 | 5 | 0 | 0 | grade |
| Particle physics laboratory I | | lab | 210 | 19 | 210 | 19 | grade |
| Selected specialization seminar | | seminar | 30 | 2 | 30 | 2 | grade |
| OGUN (General University Courses)*** | | | 20 | 2 | 70 | 7 | written or oral exam or grade |
| In total | | | 415 | 32 | 390 | 32 | |

*Option A is obligatory for those students who did not complete a team project during the first year

** Team project can be taken as a separate course or as a part of the course that requires teamwork

***2 ECTS points should be obtained from general courses unrelated to physical sciences, i.e. humanities and social sciences

Credit with a grade means that the grade is issued on the basis of one or more written tests or one or more written works carried out in the period of the didactic classes and in accordance with the syllabus of the subject

Second year, semester 4

| Course name/group of courses | Course code | Type of course | Number of hours | Number of ECTS points | Verification of learning outcomes |
|---|-------------|----------------|-----------------|-----------------------|-----------------------------------|
| Proseminar Challenges of the modern times | 1100-WP | seminar | 20 | 2 | grade |
| Proseminar Particle Physics | 1100-PCMT | seminar | 30 | 3 | grade |
| Selected monographic lecture | | lecture | 30 | 2 | written exam or grade |
| Selected specialization seminar | | seminar | 30 | 2 | grade |
| Particle physics laboratory II | | lab | 210 | 19 | pass/fail (no grade) |
| In total | | | 320 | 28 | |

| In total | Option A | | Option B | |
|--------------|-----------------|-----------------------|-----------------|-----------------------|
| | Number of hours | Number of ECTS points | Number of hours | Number of ECTS points |
| 1 year | 635 | 60 | 710 | 63 |
| 2 year | 735 | 60 | 710 | 60 |
| 1 and 2 year | 1370 | 120 | 1420 | 120 |