## Master of Science Programme in Physics, 120 ECTS - STUDY PLAN

## YEAR 1 (54 ECTS)

| COURSES | SEMESTER | ECTS | ECTS PARTITIONING |
|---|---|---|---|
| Nuclear and Subnuclear Physics | 1 | 8 | 7 Lectures<br>1 Exercises |
| Physics Laboratory | 1 | 8 | 4 Lectures<br>4 Practice |
| Theoretical Physics | 1 | 8 | 7 Lectures<br>1 Exercises |
| Statistical Mechanics | 2 | 8 | 7 Lectures<br>1 Exercises |
| Computational Methods for Physics | 2 | 8 | 5 Lectures<br>3 Practice |
| Matter Physics | 2 | 8 | 7 Lectures<br>1 Exercises |
| One module among the following options:<br>i. Optoelectronics<br>ii. Stochastic Processes<br>iii. Astrophysics<br>iv. Ecological Climatology<br>v. Aerothermodynamics and Thermostructures for Aerospace | 2 | 6 | Lectures |

## YEAR 2 (66 ECTS)

| COURSES | SEMESTER | ECTS | ECTS PARTITIONING |
|---|---|---|---|
| One module among the following options:<br>i. Nanotechnologies and Quantum Technologies<br>ii. Modeling of Complex Systems<br>iii. Particle Astrophysics<br>iv. Physics for Isotope Research<br>v. Aerospace Physics Methodologies | 1 | 6 | Lectures |
| Elective Course<br>(See Elective Courses Table) | 1 | 6 | Lectures |
| Elective Course<br>(See Elective Courses Table) | 1 | 6 | Lectures |
| European Languages | 1 | 3 | |
| Curricular Internship | 2 | 3 | |
| Master Thesis and dissertation | 1 and 2 | 42 | |

## LIST OF ELECTIVE COURSES

| TABLE OF ELECTIVE COURSES (6 ECTS) |
| --- |
| STATISTICAL LEARNING |
| DATA MINING AND BIG DATA |
| LASER SPECTROSCOPY |
| BIOPHOTONICS |
| OPTICAL SENSING |
| ADVANCED EXPERIMENTAL TECHNIQUES FOR NUCLEAR AND PARTICLE PHYSICS |
| NUCLEAR ASTROPHYSICS |
| CLIMATE CHANGE AND RELATED IMPACTS |
| DYNAMIC MODELS FOR WEATHER PREDICTION AND CLIMATE |
| PROPULSION AND PLASMA PHYSICS |
| SPACE ACCESS AND EARTH OBSERVATION |

**NOTES:**

THERE ARE SIX COMPULSORY COURSES OVER A TOTAL OF TEN

STUDENTS CAN CHOOSE AMONG FIVE SPECIALISATIONS, AS REPORTED HEREAFTER:

i. ATOMIC AND MOLECULAR PHYSICS
ii. PHYSICS OF COMPLEX SYSTEMS
iii. NUCLEAR AND PARTICLE ASTROPHYSICS
iv. ENVIRONMENTAL PHYSICS
v. AEROSPACE PHYSICS

TO THIS END, THE STUDENTS CAN USE ELECTIVE AND RESTRICTED ELECTIVE COURSES, FOR A TOTAL OF 24 ECTS.

IT IS ALSO POSSIBLE TO CUSTOMISE A PARTICULAR STUDY TRACK WITH A MIXTURE OF COURSES, WHICH ARE OF INTEREST TO THE STUDENT, THUS ALLOWING ONE TO TARGET OTHER SPECIALISATIONS.

CONVERSION FROM ECTS TO HOURS:

1 ECTS OF LECTURES = 8 HOURS

1 ECTS OF EXERCISES/PRACTICE = 12 HOURS