Screening form

MASTER OF SCIENCE IN PHYSICS - NANOPHYSICS

This present form should be used and all parts of this form should be duly completed. Please complete the form electronically using the specified form fields and upload the completed form through Mobility Online. Applications will be screened just once. Only complete applications will be forwarded to the Board of Admission.

# Scientific background

*To be eligible for the Master programme in Physics, a student should have a strong scientific background in order to be able to pass all the courses. An indicative set of concepts/disciplines that need to be understood are outlined below. This set is setup as an equivalent of the competences of a local Bachelor student.* *Note that the set is indicative and if a student misses one or more competences, he/she can still be eligible to the programme. Try to prove you master the disciplines by filling out the tables (see example below). Provide us with courses with equivalent content from your own curriculum. This can be more than one ! List as many as appropriate/necessary.*

|  |
| --- |
| 1. Quantum Mechanics
* Heisenberg and Schrödinger picture of quantum mechanics;
* Simple examples : square well potential, harmonic oscillator, transmission, reflection;
* Hydrogen atom;
* Perturbation theory;
* Scattering theory: Born approximation, notions of life time and line width, method of partial waves,…

  |
| Course Name | Semester | Grade | Keywords |
| Insert text here | Insert text here | Insert text here | Insert text here |

(*add as many lines as appropriate*)

|  |
| --- |
| 1. Solid State Physics
* Phonons;
* Free electron gas;
* Band structure;
* Ferromagnetism, magnons;
* Plasmons;
* Dielectric.
 |
| Course Name | Semester | Grade | Keywords |
| Insert text here | Insert text here | Insert text here | Insert text here |

(*add as many lines as appropriate*)

|  |
| --- |
| 1. Statistical Physics
* Ensembles : micro canonical, canonical, grand canonical;
* Distributions: Bolzmann, Fermi-Dirac, Bose-Einstein;
* Relation with thermodynamics;
* Examples: ideal gas in equilibrium, harmonic oscillators,...
 |
| Course Name | Semester | Grade | Keywords |
| Insert text here | Insert text here | Insert text here | Insert text here |

(*add as many lines as appropriate*)

|  |
| --- |
| 1. Calculus
* Ordinary differential equations;
* Infinite series;
* Evaluation of integrals;
* Integral transforms (Fourier, Laplace);
* Legendre functions;
* Bessel functions;
* Calculus of variations (Euler-Lagrange);
* Elementary properties of complex functions (poles, branch limes, residue theorem).
 |
| Course Name | Semester | Grade | Keywords |
| Insert text here | Insert text here | Insert text here | Insert text here |

(*add as many lines as appropriate*)

## GRADING SCHEMES

*If the grades are represented by letters, please provide us with a conversion scheme to numerical grades. Otherwise ignore this part.*

*A+ = … (example: 85-100%)*

*A- = … (example: 75-85%)*

*B+ = … (example: 65-75%)*

*…*

|  |
| --- |
| Insert text here |

# Course contents

*List all the courses filled out in the tables above and give their descriptions. This part is very important! Applications not containing appropriate descriptions will not be processed. Please make sure to also upload the official course description in Mobility Online. We will maximally reiterate once for more accurate information if it is missing. Please highlight in a light color the keywords of the course. Please see the example.*

**Example:**

|  |
| --- |
| Name: Quantum MechanicsCredits: 6Semester: third Bachelor in Physics, first semesterGrade: 14/20 or B+Official Description: Course explaining perturbation theory, Dirac equation, … xxxxxxx xxxxxxxxxx xx xxxxxxxx xxxxxxxx x xxxxxx xxxxx xxxxxxxxxxxxxxx xxxxxxxxxxx xxxxxxxxxxx xxxxxxxxx xxxxxx xxxxx xxxxxxxxxxxxx |

|  |
| --- |
| Name: Insert text hereCredits: Insert text hereSemester: Insert text hereGrade: Insert text hereDescription: Insert text here |

|  |
| --- |
| Name: Insert text hereCredits: Insert text hereSemester: Insert text hereGrade: Insert text hereDescription: Insert text here |

|  |
| --- |
| Name: Insert text hereCredits: Insert text hereSemester: Insert text hereGrade: Insert text hereDescription: Insert text here |

*(Make more copies of the blocks above to give a full list.)*

# Professional and practical experience, relevant to the application

*(List as many as appropriate AND relevant. Make sure you can prove it via certificates, diplomas or other materials.)*

|  |  |  |
| --- | --- | --- |
| Type of work |  | Insert text here |
| Duration (from...until...) |  | Insert text here |
| Employer |  | Insert text here |

*(Copy table as often as necessary.)*

# Rename your document

*In order to make sure that the version will not be altered by intention or accident please export it to the pdf format and rename it to 'yourname\_myapplication.pdf' (example: john\_doe\_myapplication.pdf).*

# Declaration by the applicant

I hereby certify that the information provided in this form is accurate and complete. I understand that inaccurate, incomplete or illegible information may affect my enrollment. Misrepresentation of this information is ground for admission denial or even expulsion from the University of Antwerp.

Date: Insert text here

Place: Insert text here

Signature:

**Privacy**The University of Antwerp Faculty of Science is responsible for the processing, storage and management of these personal data. In compliance with the law of December 8th 1992 on the safeguarding of personal privacy, the data which are entered are only used for administrative purposes and will not be passed on to third parties. After a simple request and without further costs the user can consult these data at all times. If the user wishes so, they will be corrected within a reasonable span of time and without further costs.