Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Programme Regulations 2011

of the Joint Master's degree programme in

High Energy Physics

Department of Physics

(joint degree programme of ETH Zurich and Institut Polytechnique de Paris)

12 April 2011[1]

This English translation is for information purposes only.
The original German version is the legally binding version.

Version: **01.01.2021 – 4**

[1] With changes pursuant to the Department Conference resolutions of 23.05.2014, 03.03.2017 and 15.12.2017, the Rector's Directive of 01.08.2016 *(the term 'Compulsory electives in humanities, social and political sciences' was officially changed to "Science in Perspective")* and according to the agreement for this study programme between ETH Zurich and the Institut Polytechnique de Paris, signed on 10.01.2021 and 10.02.2021 (subsequently 'agreement ETH – IP Paris of 2021').
This version of the Programme Regulations (01.01.2021 – 4) replaces the previous version (15.12.2017 – 3).

Programme Regulations 2011 of the Joint Master's degree programme in High Energy Physics

Department of Physics

(joint degree programme of ETH Zurich and Institut Polytechnique de Paris)

12 April 2011 (Version: 1 January 2021)

This English translation is for information purposes only. The original German version is the legally binding version.

The ETH Zurich Executive Board,

pursuant to Art. 4, Para. 1, Subpara. a of the ETH Zurich Organisational Ordinance (*Organisationsverordnung ETH Zürich*) of 16 December 2003,[2]

decrees:

Chapter 1: General regulations

Part 1: General

Art. 1 Subject and scope, Appendices

[1] These Programme Regulations set out the requirements according to which matriculated ETH Zurich students from the Department of Physics (D-PHYS) and the Institut Polytechnique de Paris[3] may acquire the Master's degree in Physics with a specia-lisation in High Energy Physics (joint degree of ETH Zurich and Institut Polytechnique de Paris).

[2] The Appendices are a part of these Programme Regulations.

[3] Any changes to these Programme Regulations or their Appendices are undertaken only on the request of or in consultation with D-PHYS. Here D-PHYS always acts with the agreement of the Academic Board (see Art. 4). Moreover:

a. Changes to the Programme Regulations are subject to the approval of the Executive Board of ETH Zurich.

b. Changes to the Appendices are subject to the approval of the Rector of ETH Zurich.

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[2] RSETHZ **201.021**

[3] Since 01.01.2021, the 'Institut Polytechnique de Paris' is formally the partner university for this degree programme, according to the agreement ETH – IP Paris of 2021.
Previous partner universities:
2011 – 31.12.2017: 'Ecole Polytechnique Paris' (EP Paris)
01.01.2018 – 31.12.2020: 'University of Paris-Saclay'. This university was established in 2014 and integrates several leading grandes écoles, among them EP Paris.

Art. 2 Sponsorship

D-PHYS and the Institut Polytechnique de Paris are joint sponsors of the specialised[4] Joint Master's degree programme in High Energy Physics.

Art. 3[5] Academic title

[1] Graduates of the degree programme are awarded the following academic title by ETH Zurich and the Institut Polytechnique de Paris (IP Paris) jointly:

Master of Science in Physik ETH Zürich – Institut Polytechnique de Paris
Vertiefung in Hochenergiephysik

(abbreviation: MSc Physik ETH Zürich – IP Paris)

[2] The English form of this title is

Master of Science in Physics ETH Zurich – Institut Polytechnique de Paris
Major in High Energy Physics

(abbreviation: MSc Physics ETH Zurich – IP Paris)

[3] «Joint Degree ETH Zürich – Institut Polytechnique de Paris» may be added to the title.

Art. 4 Academic Board

[1] In addition to the usual D-PHYS and IP Paris bodies, an Academic Board oversees the academic matters pertaining to the degree programme. The composition, tasks and cognisance of the Academic Board are set out in a separate agreement between ETH Zurich and IP Paris which is subject to the approval of the Rector of ETH Zurich and the President of IP Paris.

[2] The Academic Board and the Physics admissions committee of D-PHYS investigate candidates' academic backgrounds and suitability for the Master's degree programme. Details of the admissions procedure are set out in Art. 25 and 26 and in Appendix 1.

Art. 5 Course Catalogue

[1] In consultation with the Academic Board, D-PHYS lists the ETH course units of the degree programme in the Course Catalogue. This list is binding.

[2] Details regarding entries in the Course Catalogue are set out in Art. 4 of the General Ordinance on Performance Assessments at ETH Zurich[6] and in the corresponding implementation stipulations[7] of the Rector.

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[4] A specialised Master's degree programme in the sense of Art. 8, Para. 3 of the 'Verordnung des Hochschulrates vom 29. November 2019 über die Koordination der Lehre an den Schweizer Hochschulen' (SR **414.205.1**, *only available in German*)

[5] New version according to the agreement ETH – IP Paris of 2021, in force since 01.01.2021.

[6] RSETHZ **322.021en (***in English***),** SR **414.135.1 (***in German***)**

[7] See *www.directives.ethz.ch*

Art. 6 Appeals

[1] The ETH Internal Appeals Commission deals with appeals. Exceptions are listed in Para. 2.

[2] Appeals against decrees enacted by IP Paris are subject to the rules governing the appeals procedure at IP Paris (cognisant appeals body, deadlines etc.).

Art. 7 Legal basis

These Programme Regulations are based upon the stipulations set out in the following legal documents:

a. Ordinance on Course Units and Performance Assessments at ETH Zurich of 22 May 2012[8] (ETH Zurich Ordinance on Performance Assessments)
b. Ordinance on Admission to Studying at ETH Zurich of 30 November 2010[9] (*Zulassungsverordnung ETH Zürich*)

Part 2: Credit system

Art. 8 Policy

[1] The degree programme follows a credit system which is aligned with the European Credit Transfer System (ECTS).

[2] ETH Zurich deploys the ECTS in accordance with the Rector's Credit System Guidelines (*Richtlinien zum Kreditsystem*)[10].

Art. 9 Credits and basis for calculation

[1] Credits describe the average time expenditure required to achieve a learning goal.

[2] One credit corresponds to a workload of 30 hours. This workload comprises all of the study-related activities required to obtain said credit.

[3] The curriculum is designed such that full-time students may obtain an average of 30 credits per semester.

[8] RSETHZ **322.021en (***in English***),** SR **414.135.1 (***in German***)**
[9] (*only in German*) SR **414.131.52**, RSETHZ **310.5**
[10] See ww*w.weisungen.ethz.ch (only in German)*

Art. 10 Allocation of credits

[1] With the agreement of the Academic Board, D-PHYS allocate a certain number of credits to each of the course units they offer.

[2] If an ETH Zurich course unit is found on the curriculum of more than one ETH Zurich degree programme, the department offering the course unit assigns it a standard number of credits in consultation with those integrating it into a programme. The Rector of ETH Zurich settles any cases of disagreement.

[3] If a course unit is offered by another university that university is responsible for allocating it a certain number of credits.

Art. 11 Issuing of credits

[1] Credits are issued for satisfactory performance. Performance is considered satisfactory if it has been awarded a grade of at least a 4, or a 'pass'.

[2] No credits are issued for unsatisfactory performance.

[3] The full number of credits are always issued if the prerequisites of Para. 1 have been satisfied. Partial issue of credits is not permitted.

[4] The number of credits issued is that number published in the Course Catalogue valid at the time the respective performance assessment was undertaken.

Art. 12 Recording, checking and registration

D-PHYS records, checks and registers the credits acquired.

Chapter 2: Content, structure and scope of the Master's degree programme

Part 1: Content, structure and scope

Art. 13 Programme content, structure

[1] The Master's degree programme in High Energy Physics provides a solid education regarding both the experimental and the theoretical foundations of high energy physics.

High energy physics – an exact science at the frontiers of current knowledge which has many potential applications – is concerned with the elementary components of materials and their fundamental interactions. In high energy physics experiments the interaction of particles at high energies is studied. From reaction products the behaviour of elementary particles at very small distances can be deduced.

A theoretical description of high energy physics is based upon the so-called standard model, a quantum field theory whose consistency with modern mathematical models may be studied. The standard model provides a very successful description of fundamental interactions (with the exception of gravitation).

[2] The Master's degree programme comprises core subjects, electives, proseminars and semester papers as well as the Master's thesis. The Master's degree prepares the student for doctoral work or for entry to the labour market.

[3] The content of each student's programme curriculum is overseen and coordinated by a professor designated as 'tutor'. Details of the tutoring system are set out in Art. 19.

Art. 14 Commencement of the programme in the autumn

Students may enter the degree programme in the Autumn Semester.

Art. 15 Programme location and progression

[1] The programme proceeds as follows for students matriculated in the degree programme at ETH Zurich:

a. The first year of studies takes place at ETH Zurich.

b. The second year of studies takes place at IP Paris.

[2] The prerequisite for progressing to IP Paris is the acquisition of at least 55 credits[11] during the first year of studies. See Art. 38 for details.

[11] Version pursuant to the Department Conference resolution of 15.12.2017, in force since Autumn Semester 2017 (*55 credits instead of 50*).

Art. 16 Scope, duration, limits on duration of studies

[1] As stipulated in Art. 38, 120 credits are required to obtain a Master's degree.

[2] The normal duration of the degree programme is two years.

[3] The maximum permitted duration of studies is four years. The Rector of ETH Zurich may extend this if cogent grounds are provided in a request submitted by the specific deadline.

Art. 17 Language of instruction

[1] Course units and the corresponding performance assessments are normally conducted in English.

[2] The language of instruction is subject to the pertaining Rector's directives at ETH Zurich. Exceptions are made for those IP Paris course units which are subject to different stipulations.

Art. 18 Admission to course units

Special admission prerequisites may apply to a course unit. If these are not specified in these Programme Regulations, they are specified by that ETH Zurich department or the university which offers the respective course unit.

Art. 19 Tutoring system, individual curriculum

[1] The content of each student's programme curriculum is overseen and coordinated by a professor designated as 'tutor'.

[2] A tutor is assigned to each student by the Academic Board when admission is granted.

[3] The tutor helps the student to select ETH course units. Before the student undertakes the second year of the programme at IP Paris the tutor, in consultation with the student, draws up an individual curriculum for that year, ensuring that the second-year course units complement those of the first year.

[4] Any student who wishes to change his/her tutor should submit a well-grounded request to the Academic Board. The Academic Board may, on cogent grounds, deny the request. A change of tutor is also subject to the following:

a. A change does not entitle the student in question to an extension of the maximum permitted duration of studies.
b. Disagreements between the Academic Board and the student are settled by the Rector of ETH Zurich.

Art. 20 Study Guide

D-PHYS and IP Paris compile a Study Guide to the degree programme which includes the binding stipulations of these Programme Regulations, an overview of degree programme procedures and recommendations thereto.

Art. 21 Student exchange (outgoing students)

[1] Students of this degree programme may not take part in an ETH exchange programme. Individual exchange stays are possible, but mobility credits will in no case be recognised towards the Master's degree. Art. 16 of the ETH Zurich Ordinance on Performance Assessments[12] and the pertaining implementation stipulations[13] of the Rector set out how proof of academic achievement is handled.

[2] Credits from course units of universities other than ETH Zurich or IP Paris do not qualify as mobility credits if said course units belong to the degree programme curriculum.

[12] RSETHZ **322.021en (***in English***),** SR **414.135.1 (***in German***)**

[13] See *www.directives.ethz.ch*

Part 2: Grouping by category

Art. 22 Categories

[1] To obtain a Master's degree study achievements are required in the following categories. The minimum number of credits required in each category is set out in Art. 38.

a. Core courses
    1. Core courses in theoretical physics
    2. Core courses in experimental physics
b. Electives[14]
    1. Electives in areas of physics and mathematics
    2. General electives
c. Proseminars and semester papers
d. Science in Perspective[15]
e. Individual curriculum courses (IP Paris)
f. Master's thesis

[2] In consultation with the Academic Board, D-PHYS assigns course units to the categories in Para. 1 and publishes them in the Course Catalogue.

[3] Details regarding the additional teaching offer are found in Art. 24. The additional offer comprises subjects which are not compulsory for the Master's degree. They are also listed in the Course Catalogue.

Art. 23 Overview of categories

[1] **Core courses**

1. **Core courses in theoretical physics:** Core subjects in theoretical physics cover physical themes of an intrinsically theoretical character at an advanced level. They augment the training given in the Bachelor‘s degree course and form the foundation of an advanced education in theoretical high energy physics Details of performance assessments are provided in Art. 34.
2. **Core subjects in experimental physics:** Core subjects in experimental physics address themes of experimental physics at an advanced level. They augment the training given in the Bachelor‘s degree course and form the foundation of an advanced education in experimental high energy physics. Details of performance assessments are provided in Art. 34.

[14] Version pursuant to the Department Conference resolution of 15.12.2017, in force since Autumn Semester 2017 (*new sub-category "general electives"*).
[15] The category *'Compulsory electives in humanities, social and political sciences'* was officially changed to *'Science in Perspective'* on 01.08.2016.

[2] **Electives**

1. **Electives in areas of physics and mathematics:** These electives enable deeper specialisation in specific areas of physics or the underpinning mathematics. The respective course units are listed in the Course Catalogue. Details of performance assessments are provided in Art. 34.
2. **General electives:** General electives extend knowledge in areas of physics, mathematics and other scientific disciplines. Students may select courses from the entire range of ETH Zurich Master's degree courses. The courses chosen and their recognition towards the Master's degree require the approval of the tutor. Details of performance assessments are provided in Art. 34.

[3] **Proseminars and semester papers:** Proseminars involve independent work and deepen knowledge in an area of theoretical physics. Semester projects in a theoretical area may be conducted as an alternative. The course in experimental physics involves experimental semester projects conducted in a group. Details of performance assessments are provided in Art. 35.

[4] **Science in Perspective:** Students are required to complete course units from the "Science in Perspective" programme. Details are set out in the pertaining directive[16]; stipulations regarding performance assessments are listed in Art. 34 below.

[5] **Individual curriculum courses** (IP Paris)**:** For the second year of studies at IP Paris the tutor draws up an individual curriculum in consultation with the student.

[6] **Master's thesis:** The Master's thesis is normally conducted in the fourth semester and concludes the degree programme. With the Master's thesis students verify their ability to undertake independent and scientifically structured work in the area of high energy physics. Further details are given in Art. 37.

Art. 24 Additional course offering

[1] The additional course offering comprises seminars, colloquia and in-depth subjects. These courses are not required for the Master's degree.

[2] The additional courses cover further knowledge which rounds out the subject spectrum. They are offered for individual selection throughout the programme, with the intention of awakening students' physical and intellectual curiosity and extending their horizons. The credits acquired in this area are not recognised towards the Master's degree, but at the student's request may be listed on a separate page of the academic record.

[16] See *www.directives.ethz.ch*

Chapter 3: Admission to the Master's degree programme

Art. 25 Prerequisites for admission

[1] Persons may apply for the degree programme who hold a university Bachelor's degree comprising at least 180 ECTS credits or an equivalent university degree in Physics or another qualifying discipline.

[2] Details of the academic, language and performance prerequisites for admission (profile of requirements) are provided in Appendix 1.

Art. 26 Application, admission procedure and entry to the Master's degree programme

[1] All interested parties who wish to matriculate in the degree programme at ETH Zurich should apply to the ETH Zurich Admissions Office for admission to the degree programme.[17]

[2] First the Physics admissions committee of D-PHYS evaluates the candidates's educational background and suitability for the degree programme and formulates a request for admission or rejection. Then the Academic Board examines the educational background and suitability for the degree programme of those candidates put forward by the Physics admissions committee for acceptance, and in its turn prepares a request for acceptance/rejection which is then submitted to the Director of Studies of D-PHYS.

[3] The Rector of ETH Zurich decides whether to admit/reject the candidate on the basis of the recommendation of the Director of Studies of D-PHYS.

[4] Details regarding application, the admission procedure and entry to the Master's degree programme are determined by the Rector of ETH Zurich. They are set out in Appendix 1.

[17] Those wishing to matriculate in the degree programme at IP Paris should submit the application to IP Paris.

Chapter 4: Performance assessments

Part 1: General regulations

Art. 27 Performance evaluation and the IP Paris grading scale

[1] Performance in examinations is graded. Performance in other forms of performance assessment is either graded or evaluated on a pass/fail basis. Exceptions are where IP Paris stipulations differ from the above.

[2] At IP Paris grading proceeds according to a different grading scale. A conversion scale is provided in Appendix 2.

Art. 28 Admission to performance assessments

Admission to performance assessments may be subject to conditions. If these are not specified in these Programme Regulations, they are specified by that ETH Zurich department or the university which offers the respective course unit.

Art. 29 Location of performance assessment repetition

A failed performance assessment must be repeated at the institution where the first attempt at said assessment was made.

Art. 30 Registering/deregistering for performance assessments

[1] The following applies to registration/deregistration for performance assessments at ETH Zurich:

a. If the performance assessments in question are end-of-semester examinations or session examinations, registration and deregistration are governed by the stipulations of the ETH Zurich Ordinance on Performance Assessments[18] and the associated implementation stipulations of the Rector[19].

b. If the performance assessments fall into another category, registration and deregistration are handled directly by the respective lecturer.

[2] If the performance assessments concerned are those of IP Paris or another university, registration and deregistration are subject to the rules of that university.

[18] SR **414.135.1**, RSETHZ **322.021**

[19] See *www.weisungen.ethz.ch*

Art. 31 Absence, interruption, late submission or non-submission

The following stipulations apply to absence from, interruption, and late submission or non-submission of performance assessments:

a. ETH Zurich performance assessments are governed by the stipulations of the ETH Zurich Ordinance on Performance Assessments[20] and the associated implementation stipulations of the Rector[21].

b. For performance assessments of IP Paris or other universities the rules of the respective university apply.

Art. 32 Issuing of results and cases of disagreement

[1] Students may view all their performance results online via the corresponding ETH Zurich application. They are informed periodically by email as to which performance assessment results are now viewable.

[2] The procedure in cases of disagreement regarding newly documented results is outlined each time results are issued.

[3] Exceptions are IP Paris stipulations which differ from the above.

Art. 33 Dishonest conduct

The following stipulations apply to cases of dishonest conduct in the performance assessment context:

a. Performance assessments undertaken at ETH Zurich are subject to the ETH Zurich Ordinance on Disciplinary Measures (*Disziplinarverordnung ETH Zürich*) of 10 November 2020[22].

b. Performance assessments undertaken at IP Paris are subject to the relevant stipulations of IP Paris.

[20] SR **414.135.1**, RSETHZ **322.021**

[21] See *www.weisungen.ethz.ch*

[22] RSETHZ **361.1en,** SR **414.138.1**

Part 2: Performance assessments in the Master's degree programme

Art. 34 Core subjects, electives, Science in Perspective

[1] Every course unit in the categories 'core subjects', 'electives' and 'science in perspective' is subject to a performance assessment.

[2] The respective mode of each performance assessment is listed in the Course Catalogue if the course unit is offered by ETH Zurich.

[3] If a course unit is offered by IP Paris or another university that university determines the performance assessment mode of said course unit.

[4] A performance assessment is passed if it is awarded a grade of at least a 4 or a 'pass'.

[5] A failed performance assessment may be repeated once unless the ETH Zurich department or the university offering the respective course unit stipulates otherwise.

[6] A passed performance assessment may not be repeated.

Art. 35 Proseminars and semester papers

[1] Proseminars and semester projects (papers) conclude with a written report and an oral presentation. Further details regarding performance assessments are provided in the Course Catalogue.

[2] Performance in proseminars and semester papers is evaluated on a pass/fail basis.

[3] A failed proseminar or semester paper may not be repeated. The student must complete a different proseminar or semester paper to earn the required credits.

[4] A passed proseminar or semester paper may not be repeated.

Art. 36 Subjects of the individual curriculum (IP Paris)

IP Paris determines the mode of performance assessment of the course units it offers.

Art. 37 Master's thesis

[1] A student is only permitted to commence the Master's thesis if

a. the Bachelor's degree programme has been completed;

b. said student has acquired a total of at least 75 credits in the Master's degree programme categories 'core subjects', 'electives', and 'science in perspective'.

[2] The supervisor of the Master's thesis is always a professor from IP Paris.

[3] The Master's thesis addresses a theme in the area of high energy physics. The Master's thesis supervisor defines the task, in consultion with the student, and sets the starting date of the Master's thesis project and the deadline for thesis submission. On request, exceptions may be granted by the Academic Board.

[4] The time limit for completing the Master's thesis is six months. The Director of Studies of D-PHYS may extend this if cogent grounds are provided by the thesis supervisor.

[5] The supervisor awards a grade to the Master's thesis.

[6] The Master's thesis is passed if it is awarded a grade of at least a 4[(23].

[7] A failed Master's thesis project may be repeated once. If it is repeated, a new theme must be addressed. The repetition may be conducted with a new supervisor.

[8] A passed Master's thesis project may not be repeated.

[9] A student who fails the Master's thesis repetition has failed the degree programme and will be excluded from it.

[23] A grade of '10 / C' awarded by IP Paris corresponds to a '4' at ETH Zurich (see the conversion table in Appendix 2, right-hand column). The Master's thesis is accordingly passed if it receives a grade of '10 / C' or higher.

Chapter 5: Issuing of the Master's degree

Part 1: Credits by category and the degree request

Art. 38[24] Credits by category

[1] The 120 credits required for the Master's degree must be acquired in the categories and sub-categories in Para. 2 and 3 in at least the numbers given. Further details are set out in Para. 4 – 7.

[2] At least 55 credits must be acquired in the first year of studies at ETH Zurich. The credits must be acquired in the following categories and sub-categories in at least the numbers given:

a. **Core courses** **20 credits**
   1. Core courses in theoretical physics (at least 10 credits)
   2. Core courses in experimental physics (at least 10 credits)

b. **Electives**[25] **10 credits**
   1. Electives in areas of physics and mathematics (at least 10 credits)
   2. General electives (-- credits)

c. **Proseminars and semester papers** **8 credits**

d. **Science in Perspective** **2 credits**

[3] The following credits must be acquired in the second year of studies at IP Paris:

a. **Individual curriculum subjects** **25 credits**[26]

b. **Master's thesis** **30 credits**

Total credits Para. 2 and 3: 95 credits

[4] The following stipulations apply to the category 'core courses' (Para. 2, Subpara. a) and the sub-categeory 'electives in areas of physics and mathematics' (Para. 2, Subpara. b (1)):

a. Of the minimum 20 required credits in the category 'core courses at least 10 must be acquired in *core courses in theoretical subjects* and at least 10 in *core courses in experimental physics*.

[24] Version incorporating the Departement Conference decision of 03.03.2017, in force since 01. August 2017. Applies to all students.
[25] Version pursuant to the Department Conference resolution of 15.12.2017, in force since Autumn Semester 2017 (*new sub-category "general electives"*).
[26] Version pursuant to the Department Conference resolution of 15.12.2017, in force since Autumn Semester 2017 (*25 credits instead of 20*).

b. Of the minimum 10 required credits in the sub-category ‘electives in areas of physics and mathematics’ at least 10 must be acquired in ‘optional subjects in physics‘ (see the Course Catalogue).

5(27 At least 55 of the required 120 credits must be acquired at ETH Zurich, and at least 55 at IP Paris.

6 The pending credits, up to a total of 120, must be acquired according to the individual curriculum determined with the tutor for the second year of studies. At ETH Zurich course units from the categories ‘core courses, ‘electives’ and ‘proseminars and semester papers’ may be selected for this purpose.

7 Credits recognised in the category ‘core courses are also recognised in the category ‘electives’ (Para. 2, Subpara. b).

Art. 39 Degree request

1 When they have fulfilled the requirements set out in Art. 38 students matriculated at ETH Zurich may request the issue of the Master’s degree. This request must be submitted within four years of commencing the Master’s degree programme. The Rector of ETH Zurich may extend this deadline if cogent grounds are given.

2 The request should contain all those study achievements with pass grades in the categories and sub-categories listed in Art. 38, Para. 2 and 3 which are to be listed in the final academic record. The sum of credits in each category and sub-category must reach the minimums designated in Art. 38, Para. 2 and 3.

3 The credits earned by completing a course unit may not be recognised more than once, or divided up.

4 A maximum of 130 credits may be recognised towards the Master’s degree. All other study achievements are listed on a separate sheet of the academic record.

5 Recognition of study achievements or credits from preceding studies is not possible. Exceptions are listed in Para. 6.

6 Credits acquired at ETH Zurich or IP Paris prior to the Master’s degree programme may, on request, be recognised in the categories ‘core courses, ‘electives’ or ‘science in perspective’ (Para. 2, Subpara. a, b and d) if these credits have not already been counted towards a degree. The Director of Studies of D-PHYS decides whether credits will be recognised. There is no automatic entitlement to recognition.

27 Version pursuant to the Department Conference resolution of 15.12.2017, in force since Autumn Semester 2017 (*55 credits instead of 50*).

Part 2: Academic record, degree certificate and Diploma Supplement

Art. 40 Documents

[1] Students matriculated at ETH Zurich who complete the degree programme receive three documents from ETH Zurich: the academic record, the degree certificate and the Diploma Supplement.

[2] Graduates of the degree programme also receive a certificate from IP Paris.

Art. 41 Academic record

[1] The academic record serves as verification of the completed Master's degree.

[2] The academic record lists:

a. The study achievements listed in the degree request as per Art. 39, Para. 2, including grades and other measures of performance
b. The final grade, computed as the weighted average of all the grades listed in the degree request, with the corresponding credits as weighting.

[3] A separate sheet of the academic record lists:

a. Any additional admission requirements
b. All further study achievements as set out in the pertaining implementation stipulations[28] of the Rector

[4] D-PHYS records, checks and registers the grades and other performance evaluation indicators and places the order for the printing of the academic records.

Art. 42 Degree certificate and Diploma Supplement

[1] The degree awarded by ETH Zurich displays the logos of ETH Zurich and IP Paris and is signed by[29]

a. the Rector of ETH Zurich
b. the Head of Department of D-PHYS

[2] The Diploma Supplement comprises a standardised explanation of the degree.

[3] Further details regarding the degree certificate and the Diploma Supplement are set out in a separate agreement between ETH Zurich and IP Paris.

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[28] See *www.weisungen.ethz.ch*

[29] New version according to the agreement ETH – IP Paris of 2021, in force since 01.01.2021.

Chapter 6: Final clauses

Art. 43 Definitive failure, exclusion from the degree programme

[1] The degree programme is regarded as definitively failed if one of the following applies:

a. The conditions for obtaining the Master's degree (acquisition of the required number of credits for the Master's degree according to the stipulations of Art. 38, or any other conditions) can no longer be satisfied due to failure of performance assessments or failure to respect programme deadlines.[30]

b. In cases of admission with additional requirements said additional requirements have not been fulfilled due to failure of performance assessments or failure to respect the deadlines set for them.

[2] Definitive failure results in exclusion from the degree programme.

Art. 44 Transcript of records after exclusion or abandonment of studies

Students who are excluded from the degree programme or withdraw from it before obtaining the Master's degree receive a transcript of records which lists all the study achievements generated and evaluated before exclusion or withdrawal.

Art. 45 Special cases

The Director of Studies of D-PHYS settles cases which are not addressed or insufficiently addressed by these Programme Regulations (and their Appendix) or other relevant ordinances and directives.

Art. 46 Entry into effect

These Programme Regulations enter into effect at the beginning of Spring Semester 2011. They apply to students who enter the degree programme from that date onwards.

On behalf of the Executive Board

President: Ralph Eichler

General Secretary: Hugo Bretscher

[30] Academic deadlines are deadlines for conducting performance assessments, additional individual deadlines, and the maximum permitted duration of studies.

Appendix 1

To the Programme Regulations 2011 of the
Joint Master's degree programme in High Energy Physics

12 April 2011 (Version: 01 September 2019)

Applies to students who commence the degree programme in Autumn Semester 2020 or later.

This English translation is for information purposes only. The original German version is the legally binding document.

This appendix sets out the prerequisites for and further details regarding admission to the Joint Master's degree programme in High Energy Physics. It supplements the stipulations of the Admission Regulations of ETH Zurich and the Directive on Admission to Master's Degree Programmes.

Contents

1 Profile of requirements

Policy

For admission to the Joint Master's degree programme in High Energy Physics (subsequently 'the degree programme') all of the following prerequisites must be satisfied.

1.1 Degree qualifications

[1] For admission to the degree programme one of the following is required:

a. a university Bachelor's degree in Physics comprising at least 180 ECTS[1] credits or an equivalent university degree in Physics

b. a university Bachelor's degree comprising at least 180 ECTS credits or an equivalent university degree in a discipline whose content covers the prerequisites listed below

[2] A Bachelor's degree qualifies its holder for admission to an ETH Master's degree programme only if it also qualifies said holder to enter, without additional requirements, the desired Master's degree programme within the university system where the Bachelor's degree was acquired. The Rector may also demand proof of this, determining whether such proof must come from the home university or from another university in the country where the Bachelor's degree was acquired.

1.2 Academic prerequisites

[1] Attendance of the Joint Master's degree programme in High Energy Physics presupposes basic knowledge and competences in the disciplines of Mathematics and Physics which are in content, scope and quality equivalent to those covered in the ETH Bachelor's degree programme in Physics (discipline requirements profile).

[2] The **discipline requirements profile** is based on knowledge and competences covered in the ETH Bachelor's degree programme in Physics. This includes training in the relevant methodological scientific thinking and in experimental competence.

[3] The discipline requirements profile is structured in two parts, as follows. Details regarding the content of the corresponding course units are published in the course catalogue (www.courses.ethz.ch).

[1] ECTS: European Credit Transfer System. Credits describe the average time expended to achieve a learning goal. One credit corresponds to 30 hours of work.

Part 1: Basic knowledge and competences

Part 1 covers basic knowledge from the disciplines Mathematics and Physics. The substance of the following course units from the ETH Bachelor's degree programme in Physics is required:

Mathematics

- Analysis I
- Analysis II
- Lineare Algebra [Linear Algebra] I
- Lineare Algebra II
- Numerische Methoden [Numerical Methods]
- Informatik [Computer Science]
- Funktionentheorie [Complex Analysis]
- Methoden der mathematischen Physik [Methods of Mathematical Physics] I
- Methoden der mathematischen Physics II

Physics

- Mechanik und Wärme [Mechanics and Heat]
- Schwingungen und Wellen [Oscillations and Waves]
- Elektrizität und Magnetismus [Electricity and Magnetism]
- QuantenPhysik [Quantum Physics]

Practicals, proseminars, semester theses

The following are required:

- Physics practicals
- Semester thesis projects (experimentel or theoretical) and proseminars

Part 2: Subject-specific knowledge and competences

Part 2 covers specific knowledge in the discipline of Physics. The substance of the following course units from the ETH Bachelor's degree programme in Physics is required:

Theoretical Physics

- Allgemeine Mechanik [General Mechanics]
- Elektrodynamik [Electrodynamics]
- Quantenmechanik [Quantum Mechanics] I
- * Quantenmechanik II
- * Theorie der Wärme [Theory of Heat]
- * Kontinuumsmechanik [Continuum Mechanics]

Experimental Physics

- * Astrophysik [Astrophysics]
- * Festkörperphysik [Solid State Physics]
- * Kern- und Teilchenphysik [Nuclear and Particle Physics]
- * Quantenelektronik [Quantum Electronics]

From the course unit groups marked with an asterisk (*) the content of at least four course units is required, of which two must belong to Experimental Physics and at least one must belong to Theoretical Physics. Students who lack knowledge in Particle Physics are advised to acquire basic knowledge in this area before the beginning of the Master's degree programme.

1.3 Language prerequisites

[1] The teaching language of the degree programme is English.

[2] For admission to the degree programme, proof of sufficient knowledge of English (Level C1)[2] must be provided.

[3] The required language certificates must be submitted by the application deadline. The ETH Zurich publishes a list of the language certificates accepted.

1.4 Performance prerequisites

Admission to the degree programme presupposes a very good study performance record in the preceding course of studies, in particular with regard to the fundamentals set out in Part 1 of the discipline requirements profile, and in the areas Electrodynamics and Quantum Mechanics (the substance of the course units Electrodynamics and Quantum Mechanics I from the ETH Bachelor's degree programme) set out in Part 2.

2 Specific stipulations for admission and entering the degree programme

2.1 General regulations

Application

All interested parties should apply through the ETH Zurich Admissions Office for admission to the programme and are subject to the admissions procedure set out in Section 3.

Entering the Master's degree programme

[2] Students from an ETH Bachelor's degree programme who have been granted admission can enrol in the programme once they have acquired that number of credits which would qualify them to enrol in the Master's degree programme consecutive to their original subject.([3]

[2] The required language level is measured according to the Common European Framework of Reference for Languages scale (CEFR).

[3] The permitted number of missing credits is set out in the Study Regulations of the respective consecutive Master's degree programme (e.g., B.Sc. Physics > M.Sc. Physics).

[3] For all Bachelor's degree students who are already matriculated at ETH Zurich and who progress to the ETH Master's degree programme, the following applies:

a. The normal ETH enrolment dates and deadlines apply.
b. Admission is provisional until the Bachelor's degree is issued. Admission will be revoked if the Bachelor's degree is not or cannot be issued.

2.3 Application with a Bachelor's degree from another university

Admission

[1] For admission to the programme all of the prerequisites set out in Section 1 must be satisfied.

Entering the Master's degree programme

[2] Candidates who have been granted admission may enter the programme when they have successfully completed the preceding Bachelor's degree programme.

3 Application and admission procedure

[1] All interested parties must submit an application for admission to the degree programme. The specifications for application, in particular the documents required and the dates/deadlines for submission, are published on the website of the ETH Zurich Admissions Office (www.admission.ethz.ch).

[2] Application may be made even if the required preceding degree has not yet been issued.

[3] The admissions committee of the degree programme and the Academic Board determine how far the background of the candidate corresponds to the requirements profile and submits an application for admission/rejection to the Director of Studies.

[4] The Rector makes the final decision regarding admission or rejection.

[5] The candidate receives a written admissions decision.

Appendix 2

To the Programme Regulations 2011 of the
Joint Master's degree programme in High Energy Physics

1 October 2016 (Version: 1 January 2021)

This is English translation is for information purposes only. The original German version is the legally binding version.

Grade Conversion Scale

(Reference: Art. 27 Para. 3 of the Programme Regulations)

ETH Zurich and the Institut Polytechnique de Paris (IP Paris)[1] use different grading systems. The pertaining conversion scale is set out in the table below.

Conversion scale for grades obtained at **ETH Zurich**		Conversion scale for grades obtained at **IP Paris**	
ETH Zurich	IP Paris	**IP Paris**	ETH Zurich
6	20 / A	**20-18 / A**	6
5.75	17 / A	**17**	5.75
5.5	16 / A	**16**	5.5
5.25	15 / B	**15**	5.25
5	14 / B	**14 / B**	5
4.75	13 / B	**13**	4.75
4.5	12 / C	**12**	4.5
4.25	11 / C	**11**	4.25
4	10 / C	**10 / C**	4
3.75	8.5 / D	**8.5**	3.75
3.5	7 / D	**7 / D**	3.5
3.25	5 / E	**5**	3.25
3	2.5 / E	**2.5 / E**	3
2.75 and below	0 / F	**0 / F**	2.75

[1] Since 01.01.2021, the Institut Polytechnique de Paris is formally the partner university for this degree programme, according to the agreement ETH – IP Paris of 2021.