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Accreditation Report

for the Postgraduate Study Programme of:

Physics

Department: Physics

Institution: National Kapodistrian University of Athens

Date: 16 November 2024

Με τη συγχρηματοδότηση της Ευρωπαϊκής Ένωσης
ΕΣΠΑ 2021-2027
Πρόγραμμα
Ανθρώπινο Δυναμικό και Κοινωνική Συνοχή
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Report of the Panel appointed by the HAHE to undertake the review of the Postgraduate Study Programme of **Physics** of the **National Kapodistrian University of Athens** for the purposes of granting accreditation

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PART A: BACKGROUND AND CONTEXT OF THE REVIEW

I. The External Evaluation & Accreditation Panel

The Panel responsible for the Accreditation Review of the postgraduate study programme of **Physics** of the **National Kapodistrian University of Athens** comprised the following five (5) members, drawn from the HAHE Register, in accordance with Laws 4009/2011 & 4653/2020:

1. **Prof. Yani Skarlatos (Chair)**
   Boğaziçi University, Turkey

2. **Prof. Emeritus Christos Flytzanis**
   École Normale Supérieure, Paris

3. **Dr. Konstantinos Banitsas**
   Brunel University of London, United Kingdom

4. **Prof. Emeritus Georgios Tsatsaronis**
   Technische Universität Berlin, Germany

5. **Mr Vasileios Gkagkas**
   Aristotle University of Thessaloniki, Greece

II. Review Procedure and Documentation

The External Evaluation and Accreditation Panel (EEAP) attended a series of videoconference meetings utilising Webex tools with the leadership of MODIP, OMEA and PSP in Physics at the Department of Physics at the National and Kapodistrian University of Athens.

Videoconference meetings took place from Monday the 4th until Wednesday the 6th of November 2024 as a part of the remote External Evaluation & Accreditation Panel Review. The EEAP has been warmly welcomed by the Head of the Department Professor Hector Nistazakis, the Directors of the two PSP: PSP1 Physics: Professor Nektarios Vlahakis and PSP2 Applied Physics: Professor Helena Floca, the Head of the Quality Assurance Unit (MODIP) Mr. Konstantinos Bourletidis, the head of OMEA, Prof. Despina Hadzidimitriou, as well as several members of the Steering Committees from both PSPs. In the end of the first day, EEAP requested several supporting documents and information which MODIP made available the very next day. EEAP expresses the heartfelt thanks to the MODIP representatives for the speedy response to its request.

On the second day (5th of November), the Panel met with six representatives from the PSP Physics.

Following that, the Panel met with ten current students from the Programme. The students were asked various questions about their academic life. They expressed their perspectives regarding the structure of the PSP Programme, the challenges they are facing and their experiences so far from the Programme and the University in general.

The next video conference was with some seven graduates of the Programme. The focus of the EEAP was identifying the graduates' integration into the industry and their opportunities for further studies. All graduate participants had landed exceptional opportunities in pursuing Ph.D. studies at some prestigious institutions or held excellent positions in the industry.

On the same day, an additional meeting followed with six of the PSP's social partners group that included directors from national and university laboratories and research centres, as well as the COO of an industrial company.

On the final day of the remote visit (November 6th) the EEAP met with the leadership of the department and the Programme as well as with members of the MODIP and OMEA. The Panel offered a summary of its findings during the two-day remote visit and summarised briefly the main results of the meetings

The report hereafter presents the collective findings of the Panel based on the two-day meetings, shared documentation provided by the PSP, private discussions that followed during the videoconferences, and email communication with MODIP.

III. Postgraduate Study Programme Profile

The PSP in Physics was established long ago and assumed its current form in 2018. It is offered by the Department of Physics as a three-term degree that corresponds to 90 ECTS (European Credit Transfer System) credits. 60 ECTS are coming from courses and 30 from the mandatory thesis.

The PSP awards its graduates a master's in physics degree in three areas of specialisation:

a) Materials Physics, b) Nuclear and Elementary Particle Physics, and c) Astrophysics. There were 31 admissions to and 26 graduations from the programme in the academic year 2023-24.

There are a total of 31 full time faculty members and 8 internal and external adjuncts teaching in the programme, supported by a number of teaching and lab assistants and professional administrators.

The study programme can be considered flexible since students can select from a variety of courses to work on their specialisation area. Students have elective modules that they can select depending on their preferences and the specialisation they would like to follow.

PART B: COMPLIANCE WITH THE PRINCIPLES

PRINCIPLE 1: QUALITY ASSURANCE POLICY AND QUALITY GOAL SETTING FOR THE POSTGRADUATE STUDY PROGRAMMES OF THE INSTITUTION AND THE ACADEMIC UNIT

INSTITUTIONS SHOULD APPLY A QUALITY ASSURANCE POLICY AS PART OF THEIR STRATEGIC MANAGEMENT. THIS POLICY SHOULD EXPAND AND BE AIMED (WITH THE COLLABORATION OF EXTERNAL STAKEHOLDERS) AT THE POSTGRADUATE STUDY PROGRAMMES OF THE INSTITUTION AND THE ACADEMIC UNIT. THIS POLICY SHOULD BE PUBLISHED AND IMPLEMENTED BY ALL STAKEHOLDERS.

The quality assurance policy of the academic unit should be in line with the quality assurance policy of the Institution and must be formulated in the form of a public statement, which is implemented by all stakeholders. It focuses on the achievement of special goals related to the quality assurance of the study programmes offered by the academic unit.

Indicatively, the quality policy statement of the academic unit includes its commitment to implement a quality policy that will promote the academic profile and orientation of the postgraduate study programme (PSP), its purpose and field of study; it will realise the programme's goals and it will determine the means and ways for attaining them; it will implement appropriate quality procedures, aiming at the programme's improvement.

In particular, in order to implement this policy, the academic unit commits itself to put into practice quality procedures that will demonstrate:

a) the suitability of the structure and organisation of postgraduate study programmes
b) the pursuit of learning outcomes and qualifications in accordance with the European and National Qualifications Framework for Higher Education - level 7
c) the promotion of the quality and effectiveness of teaching at the PSP
d) the appropriateness of the qualifications of the teaching staff for the PSP
e) the drafting, implementation, and review of specific annual quality goals for the improvement of the PSP
f) the level of demand for the graduates' qualifications in the labour market
g) the quality of support services, such as the administrative services, the libraries and the student welfare office for the PSP
h) the efficient utilisation of the financial resources of the PSP that may be drawn from tuition fees
i) the conduct of an annual review and audit of the quality assurance system of the PSP through the cooperation of the Internal Evaluation Group (IEG) with the Institution's Quality Assurance Unit (QAU)

Study Programme Compliance

I. Findings

A Quality Assurance Policy has been established by the PSP of Informatics. (Doc. A2) The relevant document; in compliance with the quality policy of the NKUA; affirms the commitment of the academic unit to establish, maintain, monitor, and improve quality assurance; and clearly defines its implementation through setting of goals for continuous improvement with monitoring and evaluation on an annual basis, collection and analysis of data relevant to quality assurance, as well as management of financial resources.

II. Analysis

MODIP is monitoring and enforcing quality assurance. The coordination committee of the PSP and the department administration are managing the whole process. Annual internal audits are foreseen. The latest evaluation took place in December 2022. The quality data that had been collected was analysed. Strong and weak points were noted, and improvements/corrective actions were proposed. The intended completion date was set at the end of 2023. (Docs. A8, A3, A18).

The quality policy of the unit has been published on its web site, and the adopted goals have been listed.

The programme's faculty maintains a positive attitude towards quality assurance evaluation, and interviews with students indicate a high degree of satisfaction with the quality and relevance of the education offered by the academic unit.

A service for hearing complaints from students is being offered as of the 2023-24 academic year, and a system of academic advisors has been instituted. (Docs. A10, A11).

A set of measurable goals in connection with teaching method, student satisfaction, and learning outcomes have been codified in Doc. A3. They are all commensurate with Key Performance Indicators and appropriate for Level 7 of the European and National Qualifications Framework for Higher education. The degree of attainment of the goals is being audited. (Docs. 3, 8).

The evaluation committee could not find evidence on formal, organised direct connections with industrial partners, apart from occasional person to person conversations between faculty members and external stakeholders.

III. Conclusions

A satisfactory quality assurance policy has been established by the PSP.

Panel Judgement

Principle 1: Quality assurance policy and quality goal setting for the postgraduate study programmes of the institution and the academic unit	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Ensure that student feedback on courses and the programme, as a whole is as thorough as possible by encouraging participation and stressing its importance for the benefit of all.
- Make an effort to systematise and document the information collected in relation to the market demand for professional qualifications expected from the programme's graduates.
- Although the annual audit performed in conjunction with MODIP is well documented, periodic internal reviews carried out by the programme administration should be more formalised and better documented. Moreover, the 2023 annual audit report should be added.

PRINCIPLE 2: DESIGN AND APPROVAL OF POSTGRADUATE STUDY PROGRAMMES

INSTITUTIONS SHOULD DEVELOP THEIR POSTGRADUATE STUDY PROGRAMMES FOLLOWING A DEFINED WRITTEN PROCESS WHICH WILL INVOLVE THE PARTICIPANTS, INFORMATION SOURCES AND THE APPROVAL COMMITTEES FOR THE POSTGRADUATE STUDY PROGRAMMES. THE OBJECTIVES, THE EXPECTED LEARNING OUTCOMES AND THE EMPLOYMENT PROSPECTS ARE SET OUT IN THE PRORAMME DESIGN. DURING THE IMPLEMENTATION OF THE POSTGRADUATE STUDY PROGRAMMES, THE DEGREE OF ACHIEVEMENT OF THE LEARNING OUTCOMES SHOULD BE ASSESSED. THE ABOVE DETAILS, AS WELL AS INFORMATION ON THE PROGRAMME'S STRUCTURE ARE PUBLISHED IN THE STUDENT GUIDE.

The academic units develop their postgraduate study programmes following a well-defined procedure. The academic profile and orientation of the programme, the research character, the scientific objectives, the specific subject areas, and specialisations are described at this stage.

The structure, content and organisation of courses and teaching methods should be oriented towards deepening knowledge and acquiring the corresponding skills to apply the said knowledge (e.g. course on research methodology, participation in research projects, thesis with a research component).

The expected learning outcomes must be determined based on the European and National Qualifications Framework (EQF, NQF), and the Dublin Descriptors for level 7. During the implementation of the programme, the degree of achievement of the expected learning outcomes and the feedback of the learning process must be assessed with the appropriate tools. For each learning outcome that is designed and made public, it is necessary that its evaluation criteria are also designed and made public.

In addition, the design of PSP must consider:

- *the Institutional strategy*
- *the active involvement of students*
- *the experience of external stakeholders from the labour market*
- *the anticipated student workload according to the European Credit Transfer and Accumulation System (ECTS) for level 7*
- *the option of providing work experience to students*
- *the linking of teaching and research*
- *the relevant regulatory framework and the official procedure for the approval of the PSP by the Institution*

The procedure of approval or revision of the programmes provides for the verification of compliance with the basic requirements of the Standards by the Institution's Quality Assurance Unit (QAU).

Study Programme Compliance

I. Findings

The M.S. programme in Physics offers specialisation in the fields of Materials Physics, Nuclear and Elementary Particle Physics, and Astrophysics. The programme aims at training students to work and conduct research in their fields.

The curriculum, syllabus, and course contents have been developed in accordance with the relevant policies of the institution and European recommendations. They have been revised, and they are included in the study guide. (Doc. A5)

The study programme of Physics offers advanced training in theoretical and experimental physics, and it resembles comparable programmes in U.S. and European universities. The design of the programme has been based on the needs of the national and international markets in the area of physics and conforms to the prescriptions of Level 7 of the European and National Qualifications Framework for Higher Education. (Docs. A5, A6. A7)

The programme aims at continuous improvement of educational and research activities as well as at high quality of services provided under the guidelines of the Hellenic Quality Assurance and Accreditation Agency in Higher Education (HAHE). The institution's quality assurance unit (MODIP) oversees the process of internal and external evaluations of the programme.

II. Analysis

The programme of studies consists of core courses aiming at establishing a common foundation for students coming from physics, mathematics, and engineering backgrounds. The core courses are followed by specialised courses leading to the front lines of research in the relevant subjects and aiming at preparing students for research. A thesis based on research on a specialised subject concludes the course of studies.

All necessary documentation describing the programme, including the senate decision for its establishment, curriculum, list of teaching staff, study guide, and course and thesis descriptions have been provided. Criteria for success have been set. (Docs. 4, 5, 6, 7, 14).

There are three different areas of specialisation in the programme, and a large variety of courses are being offered to cover these areas.

Internal audits of the programme's operations are performed in cooperation with MODIP. Data on course structure and organisation are collected from the Integrated National Quality Data System (ΟΠΕΣΠ) of the Hellenic Authority of Higher Education (HAHE), as well as university and departmental systems. The data are analysed in order to evaluate and improve the educational process.

Periodic revisions of the curriculum in consultation with internal and external experts, students, graduates, and other stakeholders are stipulated in the rules of procedures of the PSP approved by the Senate of the University. (Doc. A14).

III. Conclusions

The programme has been duly designed and approved.

Panel Judgement

Principle 2: Design and approval of postgraduate study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Efforts should be made towards increased cooperation with external partners, who will come up with ideas for continuous development of the goals and the curriculum of the programme. An external advisory board to meet perhaps annually with the programme's faculty to discuss these issues should be instituted, minutes should be kept and consulted even in academic matters related to the design of the PSP.

PRINCIPLE 3: STUDENT-CENTRED LEARNING, TEACHING, AND ASSESSMENT

INSTITUTIONS SHOULD ENSURE THAT POSTGRADUATE STUDY PROGRAMMES PROVIDE THE NECESSARY CONDITIONS TO ENCOURAGE STUDENTS TO TAKE AN ACTIVE ROLE IN THE LEARNING PROCESS. THE ASSESSMENT METHODS SHOULD REFLECT THIS APPROACH.

Student-centred learning and teaching plays an important role in enhancing students' motivation, their self-evaluation, and their active participation in the learning process. The above entail continuous consideration of the programme's delivery and the assessment of the related outcomes.

The student-centred learning and teaching process

- *respects and attends to the diversity of students and their needs by adopting flexible learning paths*
- *considers and uses different modes of delivery, where appropriate*
- *flexibly uses a variety of pedagogical methods*
- *regularly evaluates and adjusts the modes of delivery and pedagogical methods aiming at improvement*
- *regularly evaluates the quality and effectiveness of teaching, as documented especially through student surveys*
- *strengthens the student's sense of autonomy, while ensuring adequate guidance and support from the teaching staff*
- *promotes mutual respect in the student-teacher relationship*
- *applies appropriate procedures for dealing with the students' complaints*
- *provides counselling and guidance for the preparation of the thesis*

In addition

- *The academic staff are familiar with the existing examination system and methods and are supported in developing their own skills in this field.*
- *The assessment criteria and methods are published in advance. The assessment allows students to demonstrate the extent to which the intended learning outcomes have been achieved. Students are given feedback, which, if necessary is linked to advice on the learning process.*
- *Student assessment is conducted by more than one examiner, where possible.*
- *Assessment is consistent, fairly applied to all students and conducted in accordance with the stated procedures.*
- *A formal procedure for student appeals is in place.*
- *The function of the academic advisor runs smoothly.*

Study Programme Compliance

I. Findings

The PSP offers flexibility of both in-person and distance learning applied in special cases. It employs interactive educational materials and supplementary resources through digital platforms such as e-class.

Assessments are primarily conducted through written exams, though some courses integrate these with assignments. Also, certain elective courses are evaluated solely through project work or research papers.

Teaching methods encompass a range of activities, including lectures, tutorials (for special cases such as Erasmus students), laboratory exercises, and individual assignments.

Interviews with students and stakeholders have revealed a potential minor gap in practical laboratory training and empirical observations in certain academic paths.

Students in the PSP evaluate courses and instructors through questionnaires, which are available online at the end of each teaching period. They also can submit complaints and appeals via an established Complaints Management Committee.

The programme publishes its evaluation criteria and methods at the beginning of each semester. Each PSP student is assigned an Academic Advisor (AA), who is a faculty member of the programme. The AA provides support and guidance on the curriculum and remains the same throughout the student's studies. Students can consult their AA whenever they require guidance or advice, thereby enhancing academic support and fostering personal development.

II. Analysis

The PSP promotes flexibility in teaching and assessment, adapting to the diverse needs of its students. The variety of teaching methods fosters autonomous learning and enables students to delve deeper into specialised topics.

The programme emphasises developing individual skills, as courses focus on independent work, data analysis, synthesis, and critical and analytical thinking.

PSP's students are considered active partners in the teaching and learning process as they evaluate courses and their instructors. This evaluation is conducted through electronic questionnaires, which are available at the end of each teaching period. The feedback collected is utilised to continuously improve the programme and its alignment with student needs, reinforcing the programme's student-centred approach.

Moreover, the opportunity for students to submit complaints and appeals encourages their active participation in enhancing educational services, demonstrating that their opinions are highly valued. However, student participation in the evaluation processes remains limited.

The programme's transparency in publishing evaluation criteria and methods at the beginning of each semester allows students to adequately prepare for the programme's requirements, ensuring a fair and structured academic experience.

III. Conclusions

The PSP provides the necessary conditions to encourage students to take an active role in the learning process, with assessment methods reflecting this approach. Through the programme, students are motivated to develop skills such as problem solving, as well as fostering creative and inductive thinking. However, in some cases, students' research skills may be underdeveloped. The PSP operates within a student-centred environment that promotes mutual respect. This is supported by various processes and support structures that enhance

student participation. Overall, these practices demonstrate a clear commitment to creating a student-centred learning environment focused on respect and collaboration.

Panel Judgement

Principle 3: Student-centred learning, teaching, and assessment	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The PSP could consider enhancing laboratory training for students on a case-by-case basis. While this may incur additional costs in terms of infrastructure and human resources, it would significantly improve the quality of the education provided. Enhanced laboratory experiences would encourage students to further develop essential individual skills, fostering a more comprehensive and hands-on understanding of the subject matter.
- To increase student participation in evaluation processes, the PSP could explore ways to reinforce the perception that evaluation is valuable and plays a crucial role in the programme's development.

PRINCIPLE 4: STUDENT ADMISSION, PROGRESSION, RECOGNITION OF POSTGRADUATE STUDIES, AND CERTIFICATION

INSTITUTIONS SHOULD DEVELOP AND APPLY PUBLISHED REGULATIONS COVERING ALL ASPECTS AND PHASES OF STUDIES (ADMISSION, PROGRESSION, THESIS DRAFTING, RECOGNITION AND CERTIFICATION).

All the issues from the beginning to the end of studies should be governed by the internal regulations of the academic units. Indicatively:

- *the student admission procedures and the required supporting documents*
- *student rights and obligations, and monitoring of student progression*
- *internship issues, if applicable, and granting of scholarships*
- *the procedures and terms for the drafting of assignments and the thesis*
- *the procedure of award and recognition of degrees, the duration of studies, the conditions for progression and for the assurance of the progress of students in their studies*
- *the terms and conditions for enhancing student mobility*

All the above must be made public in the context of the Student Guide.

Study Programme Compliance

I. Findings

This PSP started its operation in its present form in 2018 and offers a Post Graduate Diploma in Physics with specialisation in “Physics of Materials”, “Nuclear and Elementary Particle Physics “, and “Astrophysics”. Student admission for this PSP is restricted to up to 60 per year. However, the number of students accepted and particularly finally matriculated is significantly lower. Eligible for admission are graduates from Physics, departments of Applied Sciences, and some departments of Engineering Schools.

The selection among the applicants is conducted by a three-person academic committee and is based on a series of well-established criteria. When required, candidates’ interviews are conducted by the academic committee. These procedures are clearly described in the required supporting documents, which also contain information for the student rights and obligations, and ways allowing monitoring their progression. Research ethics regulation, regulation of studies, internship, mobility and student assignments are also provided. A website with all this information exists, both in Greek and English versions. No fees are charged for this PSP.

This specific PSP is a demanding one and is a challenge for students who also have an outside job because it requires a lot of time and effort.

The duration of the PSP is three semesters (90 ETCS in total). Students are evaluated at the end of each semester. Students are required to write a master’s thesis in the third semester. Often, the students need more time to finish. The PSP diploma allows graduates to get a job in the public or private sector or to continue their education by acquiring a PhD degree.

There is very good communication between the students and faculty members of the PSP, who are always available to assist the students. The progress of the students of the PSP is followed closely by the faculty members.

The meetings of the EEAP with current and past students of the PSP, as well as with employers of graduates from this PSP, left a very positive impression of the quality of the PSP. All participants were enthusiastic and positive concerning their experience and education received. Several past students are excelling in the private and academic sectors at the international level, indicating this PSP's importance. Some current and past students requested more hands-on experience. Concerning the quality and number of courses, students pointed out that courses are well-structured and the learning effect is significant.

The mobility of the students is not satisfactory, even though Erasmus+ and other mobility platforms are available.

II. Analysis

This is a high-quality PSP, but the number of matriculated students is relatively small. This fact results in some classes being offered for less than five students. The faculty could consider ways to accept a higher number of students, perhaps by lowering some acceptance requirements, at least for a trial period of 2-3 years. After the end of the trial period, the results of this action should be evaluated, and if necessary, adjustments should be made.

The flow of information regarding this PSP is very good from the beginning until the end of the programme of studies.

Student mobility is very important for the future development of graduates. It must be recognized that although student mobility is relatively low in this PSP, many graduates have very successful international careers. A stronger encouragement of students to participate in exchange programmes should yield more positive results.

The length of studies of this PSP is generally considered satisfactory by the Panel. The rate of graduation is high for the PSP.

In general, the higher the participation of external stakeholders in the PSP activities, the more successful the programme. Therefore, external stakeholders should be encouraged to offer pertinent seminars and have students participate in them.

III. Conclusions

This is a well-organised and designed PSP in the field of Physics. The regulations for student admission, recognition of postgraduate studies, and certification are in place. Attention should be placed on the admissions criteria to increase the number of students and to efforts to increase student mobility and the number of presentations from external seminar presenters.

Panel Judgement

Principle 4: Student admission, progression, recognition of postgraduate studies and certification	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

To enhance adherence to Principle 4, the EEAP recommends the following:

- The admissions committee should consider that more students are accepted to the PSP.
- Students should be further encouraged to participate in exchange programmes.
- More lecturers from Greece and abroad should be invited to give seminars on pertinent and actual topics that cannot be covered in the classes.

PRINCIPLE 5: TEACHING STAFF OF POSTGRADUATE STUDY PROGRAMMES

INSTITUTIONS SHOULD ASSURE THEMSELVES OF THE LEVEL OF KNOWLEDGE AND SKILLS OF THEIR TEACHING STAFF, AND APPLY FAIR AND TRANSPARENT PROCESSES FOR THEIR RECRUITMENT, TRAINING AND FURTHER DEVELOPMENT.

The Institution should attend to the adequacy of the teaching staff of the academic unit teaching at the PSP, the appropriate staff-student ratio, the appropriate staff categories, the appropriate subject areas, the fair and objective recruitment process, the high research performance, the training- development, the staff development policy (including participation in mobility schemes, conferences, and educational leaves-as mandated by law).

More specifically, the academic unit should set up and follow clear, transparent and fair processes for the recruitment of properly qualified staff for the PSP and offer them conditions of employment that recognise the importance of teaching and research; offer opportunities and promote the professional development of the teaching staff; encourage scholarly activity to strengthen the link between education and research; encourage innovation in teaching methods and the use of new technologies; promote the increase of the volume and quality of the research output within the academic unit; follow quality assurance processes for all staff (with respect to attendance requirements, performance, self-assessment, training, etc.); develop policies to attract highly qualified academic staff.

Study Programme Compliance

I. Findings

The postgraduate programme in Physics in NKUA was founded in 1994 in connection with the reorganisation of the Unified Postgraduate Curriculum of Physics of NKUA according to the European standards with the full membership of Greece in the European Union and much benefitted by its overall support in its establishment and evolution.

The structure, organisation and allocated means for the teaching programme are appropriate at the present level for the scope and objectives of the PSP as presented in the detailed Study Guide and discussed in the Accreditation Meeting. This ensures an appreciated quality and interesting evolution of the PSP in view of the overall excellent results of the Department and its ongoing evolution.

In this context, the teaching staff of the Department of Physics played a central role by its involvement in the structure and organisation of the programme with the support of the technical and administrative services. This is due to its high teaching quality, expertise in the chosen and projected topics, closely following and supporting the graduate students in the training and counselling for their studies, as well as its subsequent involvement in research and education and professional careers in private or public organisations. All this is with proper attention to the possibilities, needs and priorities of the country as reflected in the structure of the PSP and its evolution.

The PSP presently provides three specialisations 1. Materials Physics 2. Nuclear and Elementary Particle Physics and 3. Astrophysics; the 2. and 3. were introduced in the start of the PSP and concern specific large scale activities on fundamental issues in physics mostly in large European facilities abroad or very closely entangled with external ones in Europe and the 1., introduced in 2018, concerns condensed matter physics with wide range of choices in materials for research and applications of definite interest in advanced technologies which however is still in the very probing stage and needs careful and extensive support for its choices and subsequent development.

II. Analysis

The teaching staff along with its commitment to the ongoing research activities have played a central role in the structure and organisation of the PSP and the training of graduates in physics at appropriate level for its use in basic research and education and to some extent with some applications with technological interest at the national level. In the following these achievements must be reevaluated and adapted to the needs in the present evolution in physics and its impact in advanced technologies involving also other scientific fields. In this process, certain aspects in the organisation of the education must be properly readapted and addressed.

The low number of admitted graduates with respect to the teaching staff in the three specialisations is an important issue to be reevaluated. Particularly, concerning the crucial inclusion of the specialisation 3 in material sciences, it will have a definite impact on the overall structure, scope and objectives of the PSP about fundamental research and development of advanced technologies in Greece; and in the variety of professional careers as it involves a wide range of fields.

The majority of students are involved in outside work and the overall teaching and training in Physics is affected in several aspects in particular in their presence in the institution and the use of its additional facilities for study and mutual interactions and reduces the impact of the extensive involvement of the teaching members.

In this context, the reduction of duration of the postgraduate programme from four to three semesters introduces additional restrictions in the training and counselling of the graduate students. The main and very serious consequence is their exclusion from programmes like Erasmus to spend a semester or year in a European institution and have additional training in courses or diploma work in another context in English or another foreign language.

These issues affect the availability of the students for experimental training and work in their courses and diploma thesis where the Department of physics pays particular attention for its evolution; this will become particularly sensitive for specialisation 1 in material sciences recently introduced in the curriculum.

III. Conclusions

Overall, the reorganisation of the Physics Department since its foundation in 1994 and the additional developments in 1918 led to important improvements and visibility in its evolution and definite quality in its objectives for the training in Physics and is now in position to face new challenges with appropriate reorganisation and restructure of its programme.

Panel Judgement

Principle 5: Teaching staff of postgraduate study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- The PSP must develop some long-term exchanges with some selected foreign groups and allocate means for the invitation of foreign scientists to participate in the teaching and also for new research activities particularly in material sciences.
- The PSP must pay particular attention in attracting new members to the department from the large Greek community abroad, who are well active in the new areas in Physics.

PRINCIPLE 6: LEARNING RESOURCES AND STUDENT SUPPORT

INSTITUTIONS SHOULD HAVE ADEQUATE FUNDING TO COVER THE TEACHING AND LEARNING NEEDS OF THE POSTGRADUATE STUDY PROGRAMME. THEY SHOULD –ON THE ONE HAND- PROVIDE SATISFACTORY INFRASTRUCTURE AND SERVICES FOR LEARING AND STUDENT SUPPORT, AND – ON THE OTHER HAND- FACILITATE DIRECT ACCESS TO THEM BY ESTABLISHING INTERNAL RULES TO THIS END (E.G. LECTURE ROOMS, LABORATORIES, LIBRARIES, NETWORKS, NETWORKS, CAREER AND SOCIAL POLICY SERVICES ETC.).

Institutions and their academic units must have sufficient resources and means, on a planned and long-term basis, to support learning and academic activity in general, so as to offer PSP students the best possible level of studies. The above means include facilities such as the necessary general and more specialised libraries and possibilities for access to electronic databases, study rooms, educational and scientific equipment, IT and communication services, support and counselling services.

When allocating the available resources, the needs of all students must be taken into consideration (e.g. whether they are full-time or part-time students, employed students, students with disabilities), in addition to the shift towards student-centred learning and the adoption of flexible modes of learning and teaching. Support activities and facilities may be organised in various ways, depending on the institutional context. However, the internal quality assurance proves -on the one hand- the quantity and quality of the available facilities and services, and -on the other hand- that students are aware of all available services.

In delivering support services, the role of support and administration staff is crucial and therefore this segment of staff needs to be qualified and have opportunities to develop its competences.

Study Programme Compliance

I. Findings

The PSP provides both tangible and intangible support through its infrastructure. Based on a review of the provided materials and interviews with faculty and students, the following resources were identified:

- Lecture rooms equipped with modern audiovisual technology, supporting lectures and seminars.
- Specialised laboratories that enhance teaching, practical training, and research activities.
- IT infrastructure, including computational systems and software.
- Digital libraries and databases are accessed through the university's central library.
- Advisory services, such as career counselling and job market connections through the Career Office, and psychosocial counselling provided by units like the Mental Health Centre.
- Facilities for students with disabilities, including accessible examination spaces and escort services when needed.
- Academic advising, where each student is assigned an academic advisor to guide them on study and career development matters.

Students interviewed were aware of these services and reported them as functional and easily accessible.

The student-to-faculty ratio is generally low, owing to the limited number of students admitted each academic year.

The programme does not charge tuition fees; its operational costs are covered through external funding sources such as the Special Account for Research Grants (SARG) and European programmes, which support the programme's activities and development.

II. Analysis

The infrastructure of the PSP programme is modern and advanced, adequately meeting the technological needs of students while also supporting the teaching staff. It significantly enhances students' research and study capabilities. A key factor in this is the sufficient number of academic and administrative staff, which ensures the smooth operation of teaching and student support services.

Despite operating without tuition fees, the PSP benefits from funding provided by the Special Account for Research Grants (SARG) and European programmes. This funding supports teaching, student services, and the mobility of academic staff, ensuring their participation in international conferences and covering related expenses on an annual basis.

III. Conclusions

The PSP provides the necessary facilities and infrastructure to ensure an optimal teaching and learning environment. These resources create a supportive and effective learning setting for graduate students. The programme offers a wide range of support services aimed at enhancing the student experience and facilitating their academic and personal development. These services reflect the PSP’s commitment to creating a supportive environment that addresses the academic, social, and personal needs of its students. Administrative support for the PSP is both sufficient and well organised, ensuring the smooth operation of the programme and efficient student services. The adequacy of human resources and infrastructure is deemed satisfactory, with the department systematically monitoring the quality of available support services and implementing corrective measures when necessary.

Panel Judgement

Principle 6: Learning resources and student support	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

None.

PRINCIPLE 7: INFORMATION MANAGEMENT

INSTITUTIONS BEAR FULL RESPONISBILITY FOR COLLECTING, ANALYSING AND USING INFORMATION, AIMED AT THE EFFICIENT MANAGEMENT OF POSTGRADUATE STUDY PROGRAMMES AND RELATED ACTIVITIES, IN AN INTEGRATED, EFFECTIVE AND EASLILY ACCESSIBLE WAY.

Institutions are expected to establish and operate an information system for the management and monitoring of data concerning students, teaching staff, course structure and organisation, teaching and provision of services to students.

Reliable data is essential for accurate information and decision-making, as well as for identifying areas of smooth operation and areas for improvement. Effective procedures for collecting and analysing information on postgraduate study programmes and other activities feed data into the internal system of quality assurance.

The information collected depends, to some extent, on the type and mission of the Institution. The following are of interest:

- *key performance indicators*
- *student population profile*
- *student progression, success, and drop-out rates*
- *student satisfaction with their programmes*
- *availability of learning resources and student support*

A number of methods may be used to collect information. It is important that students and staff are involved in providing and analysing information and planning follow-up activities.

Study Programme Compliance

I. Findings

During the discussions, the accreditation committee had a chance to briefly discuss the way that information regarding the course is managed and distributed. In essence, when it comes to information management, the course uses a unified system; UniTron to handle all information.

Such information includes, but is not limited to, student data, course descriptors, assignment submission depository, teaching class assignment and timetabling, statistical data management, student accommodation, subsidence and student support.

The system is capable of offering information about the modules chosen by each student, the grades and results of each module, issue certifications related to the course/modules taken, personalised student timetables, progress reports and updates related to students' applications.

Finally, the system can also provide academics with valuable tools like marking and personal timetables.

The acquired data are used to monitor the student achievements, student profile, attrition rate and the general student satisfaction and are eventually fed back to the educational steering committee.

All the above data are available to both internal and external bodies (i.e. ETHAAE).

II. Analysis

Although all the above metrics are mentioned in the institution's report, the ones related to the support of the students and staff can only be taken at face value as there was no way of verifying their existence or validity. This is somehow understandable as they run on a firewalled platform (UniTron) that the accrediting committee could not have direct access to. However, the institution was asked to provide screenshots of the relevant material, but nothing was received upon writing up this report.

Nevertheless, the committee has no reason to doubt their existence.

III. Conclusions

It seems that the course is where it needs to be in relation to the information management of the PSP and the use of IT to support this. Meeting with the students (both current and graduates) confirmed that there were no significant complaints regarding that matter.

Panel Judgement

Principle 7: Information management	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Provide motivation for students to fill in the feedback questionnaires. Consider some kind of "rewards".

PRINCIPLE 8: PUBLIC INFORMATION CONCERNING THE POSTGRADUATE STUDY PROGRAMMES

INSTITUTIONS SHOULD PUBLISH INFORMATION ABOUT THEIR TEACHING AND ACADEMIC ACTIVITIES RELATED TO THE POSTGRADUATE STUDY PROGRAMMES IN A DIRECT AND READILY ACCESSIBLE WAY. THE RELEVANT INFORMATION SHOULD BE UP-TO-DATE, OBJECTIVE AND CLEAR.

Information on the Institutions' activities is useful for prospective and current students, graduates, other stakeholders, and the public.

Therefore, Institutions and their academic units must provide information about their activities, including the PSP they offer, the intended learning outcomes, the degrees awarded, the teaching, learning and assessment procedures applied, the pass rates, and the learning opportunities available to their students. Information is also provided on the employment perspectives of PSP graduates.

Study Programme Compliance

I. Findings

The department of Physics keeps a dedicated web page for its courses, both undergraduate and postgraduate. The current PSP is also included there, with information regarding the generic nature of the course, the modules per semester, University rules and regulations, forms and reports as well as the quality assurance policy.

There are several forms included there that the students might find useful, ranging from raising a complaint to applications for the degree ceremony. It also includes the detailed programme descriptors as well as an elaborate list of the teaching staff.

The web pages were kept simple, with obvious links for each section.

II. Analysis

In validating the links of the support web pages, the committee did not find any broken links, while the timeliness and accuracy of information seemed of high standards.

III. Conclusions

The PSP has demonstrated an excellent level of public dissemination of information regarding this course through the use of dedicated web pages. These pages can act as a first point of contact for existing students, providing them with the most frequently used tools and forms.

The web page does have an English counterpart, but it is only populated with the less "dynamic" information such as "general information" and "course descriptors".

Panel Judgement

Principle 8: Public information concerning the postgraduate study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

- Make all sections of the web page of the course to include an English counterpart.

PRINCIPLE 9: ON-GOING MONITORING AND PERIODIC INTERNAL EVALUATION OF POSTGRADUATE STUDY PROGRAMMES

INSTITUTIONS AND ACADEMIC UNITS SHOULD HAVE IN PLACE AN INTERNAL QUALITY ASSURANCE SYSTEM FOR THE AUDIT AND ANNUAL INTERNAL REVIEW OF THEIR POSTGRADUATE STUDY PROGRAMMES, SO AS TO ACHIEVE THE OBJECTIVES SET FOR THEM, THROUGH MONITORING AND POSSIBLE AMENDMENTS, WITH A VIEW TO CONTINUOUS IMPROVEMENT. ANY ACTIONS TAKEN IN THE ABOVE CONTEXT SHOULD BE COMMUNICATED TO ALL PARTIES CONCERNED.

The regular monitoring, review, and revision of postgraduate study programmes aim at maintaining the level of educational provision and creating a supportive and effective learning environment for students.

The above comprise the evaluation of:

a) the content of the programme in the light of the latest research in the given discipline, thus ensuring that the PSP is up to date
b) the changing needs of society
c) the students' workload, progression and completion of the postgraduate studies
d) the effectiveness of the procedures for the assessment of students
e) the students' expectations, needs and satisfaction in relation to the programme
f) the learning environment, support services, and their fitness for purpose for the PSP in question

Postgraduate study programmes are reviewed and revised regularly involving students and other stakeholders. The information collected is analysed and the programme is adapted to ensure that it is up-to-date.

Study Programme Compliance

I. Findings

An audit and an internal evaluation of the PSP are conducted aiming at its continuous improvement, so that, through monitoring and potential corrective actions, the goals that have been set can be achieved. The internal evaluation of the Programme takes place once every year and a report is drawn up according to the Quality Assurance Unit policy. The procedure is described in Appendix A19.

The whole procedure is coordinated by a study programmes committee and Programme OMEA and takes into account:

- The international tendencies in the field
- The consultation with faculty, students, support staff and recent graduates, (through informal but meaningful meetings).
- The results of the evaluation questionnaire
- Informal advice from stakeholders

Establishing a formal External Advisory Committee, in which many stakeholders would participate, would formalise the last point and strengthen the overall internal evaluation process.

The negative points mentioned in one Internal Evaluation Report (Appendix A18) are being addressed satisfactorily.

II. Analysis

From the discussions during the meetings, it became evident to the EEAP that every effort is made by the Programme Director and the Department as a whole to collect, analyse, and discuss information obtained within the postgraduate programme.

However, the participation of students in the evaluation questionnaires is very low. Measures should be taken to increase this participation. An option would be to ask the students to evaluate each course in the beginning of one of the last classes in this course. The results of these evaluations are used to redesign the teaching programme.

An External Advisory Committee that would meet once or twice per year and in which external stakeholders would participate could provide additional input with respect to options for improving the PSP.

The difficulty of the diverse origins of admitted students is monitored and well tackled in the study programme.

Quality indicators are kept, with specific improvement objectives, achievement dates and procedures for their successful achievement have been set.

III. Conclusions

The monitoring and the annual Internal Evaluation of the programme is well organised and adequately documented. The formation of an External Advisory Committee should be considered, and the participation of the students to the class evaluations should be enhanced.

Panel Judgement

Principle 9: On-going monitoring and periodic internal evaluation of postgraduate study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

To enhance adherence to Principle 9, the EEAP recommends the following:

- Establish an External Advisory Board
- Find a way to increase the participation of students to the class evaluations.

PRINCIPLE 10: REGULAR EXTERNAL EVALUATION OF POSTGRADUATE STUDY PROGRAMMES

THE POSTGRADUATE STUDY PROGRAMMES SHOULD REGULARLY UNDERGO EVALUATION BY PANELS OF EXTERNAL EXPERTS SET BY HAHE, AIMING AT ACCREDITATION. THE TERM OF VALIDITY OF THE ACCREDITATION IS DETERMINED BY HAHE.

HAHE is responsible for administrating the PSP accreditation process which is realised as an external evaluation procedure, and implemented by panels of independent experts. HAHE grants accreditation of programmes, based on the Reports delivered by the panels of external experts, with a specific term of validity, following to which, revision is required. The quality accreditation of the PSP acts as a means for the determination of the degree of compliance of the programme to the Standards, and as a catalyst for improvement, while opening new perspectives towards the international standing of the awarded degrees. Both academic units and Institutions must consistently consider the conclusions and the recommendations submitted by the panels of experts for the continuous improvement of the programme.

Study Programme Compliance

I. Findings

Overall, the procedure of external evaluation of the PSP of the Department of Physics in NKUA was well accepted and conducted, while the presentation and discussions proceeded in a very constructive way in all respects. Possible readjustments were discussed in connection with other procedures and the internal evaluations of the department.

II. Analysis

The PSP in Physics in NKUA finds the Accreditation procedure very appropriate for its evolution in the training of graduate students in Physics for teaching, research and professional careers; it finds it very receptive in the promotion of new directions in connections with other PSP in NKUA and with other Institutions within the European Union.

III. Conclusions

The present external procedure is very positively accepted and followed by the Institution.

Panel Judgement

Principle 10: Regular external evaluation of postgraduate study programmes	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

Panel Recommendations

None

PART C: CONCLUSIONS

I. Features of Good Practice

Strong teaching staff; highly capable students; excellent career opportunities.

II. Areas of Weakness

Lack of an external advisory board.

III. Recommendations for Follow-up Actions

- Ensure that student feedback on courses and the programme as a whole is as thorough as possible by encouraging participation and stressing its importance for the benefit of all. Consider some kind of “rewards”.
- Make an effort to systematise and document the information collected in relation to the market demand for professional qualifications expected from the programme’s graduates.
- Although the annual audit performed in conjunction with MODIP is well documented, periodic internal reviews carried out by the programme administration should be more formalised and better documented. Moreover, the 2023 annual audit report should be added.
- Efforts should be made towards increased cooperation with external partners, who will come up with ideas for continuous development of the goals and the curriculum of the programme. An external advisory board to meet perhaps annually with the programme’s faculty to discuss these issues should be instituted, minutes should be kept and consulted periodically in order to assess the relevance of technical skills taught, ensuring they meet evolving market demands.
- The PSP could consider enhancing laboratory training for students on a case-by-case basis. While this may incur additional costs in terms of infrastructure and human resources, it would significantly improve the quality of the education provided. Enhanced laboratory experiences would encourage students to further develop essential individual skills, fostering a more comprehensive and hands-on understanding of the subject matter.
- The admissions committee should consider that more students are accepted to the PSP.
- Students should be further encouraged to participate in exchange programmes.
- More lecturers from Greece and abroad should be invited to give seminars on pertinent and actual topics that cannot be covered in the classes.
- Make all sections of the web page of the course to include an English counterpart.
- The PSP must develop some long-term exchanges with some selected foreign groups and allocate means for the invitation of foreign scientists to participate in teaching and new research activities, particularly in material sciences.

- The PSP must pay particular attention in attracting new members to the department from the large Greek community abroad, who are well active in the new areas in Physics.

IV. Summary & Overall Assessment

The Principles where full compliance has been achieved are: **1,2,3,4,5,6,7,8,9,10**

The Principles where substantial compliance has been achieved are: **None**

The Principles where partial compliance has been achieved are: **None**

The Principles where failure of compliance was identified are: **None**

Overall Judgement	
Fully compliant	**X**
Substantially compliant	
Partially compliant	
Non-compliant	

The members of the External Evaluation & Accreditation Panel

Name and Surname

1. **Prof. Yani Skarlatos (Chair)**
2. **Prof. Emeritus Christos Flytzanis**
3. **Dr. Konstantinos Banitsas**
4. **Prof. Emeritus Georgios Tsatsaronis**
5. **Mr. Vasileios Gkagkas**